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TTCP TRIAL RDS-2
RAPIDLY DEPLOYABLE SYSTEMS
NON-ACOUSTIC DATA

F. Desharnais & G. Heard

DEFENCE RESEARCH ESTABLISHMENT ATLANTIC

Technical Memorandum
DREA TM 1999-069
May 1999

National Defence Défense nationale

Canada

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National Defence
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DREA TM 1999-069

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Approved by
J.S.Kennedy
Head, Underwater Acoustics

May 1999

TECHNICAL MEMORANDUM

Prepared by

Defence Research Establishment Atlantic

Centre de Recherches pour la Défense Atlantique

Canada

ABSTRACT

This report contains a collection of non-acoustic data gathered during the TTCP sea trial RDS-2. The data were collected on the three ships that participated in the trial: FRV Southern Surveyor, HMNZS Manawanui and TSMV Pacific Conquest. The trial took place in the shallow waters of northern Australia, about 100 miles west of the city of Darwin, during the period 29 October - 12 November 1998. Trial RDS-2 was a TTCP Subgroup G initiated multinational collaborative sea trial of concepts related to rapidly deployable underwater systems. The endorsed aim of the trial was to test and demonstrate advanced deployable array technologies, advanced data recovery methods and rapid array deployment techniques. RDS-2 was the second of three collaborative sea tests proposed by the RDS working group. This document provides sufficient information to allow researchers to use the collected data independently.

RÉSUMÉ

Ce document contient une collection de données non-acoustiques recueillies durant l'essai en mer RDS-2 du TTCP. Les données ont été recueillies à bord des trois navires qui ont participé à la croisière: le FRV Southern Surveyor, le HMNZS Manawanui et le TSMV Pacific Conquest. Les essais se sont effectués dans une région en eau peu profonde au nord de l'Australie, approximativement 100 milles à l'ouest de la ville de Darwin, durant la période du 29 octobre au 12 novembre 1998. La croisière expérimentale RDS-2 fait partie d'une série de tests en collaboration multinationale initiée par le Sous-groupe G du TTCP dans le but d'évaluer des concepts de systèmes sous-marins rapidement déployés. L'objectif agréé de la croisière était de tester et démontrer les technologies avancées de déploiement de réseaux, les méthodes avancées de collecte de données, et les techniques de déploiement rapide de réseaux. RDS-2 était le second d'une série de trois essais en mer proposés par le groupe de travail RDS. Ce document contient suffisamment d'information pour permettre aux chercheurs de conduire indépendamment leurs analyses de données.

EXECUTIVE SUMMARY

REPORT NO: DREA Technical Memorandum TM 1999/069
TITLE: TTCP Trial RDS-2: Rapidly Deployable Systems — Non-acoustic data
AUTHORS: Francine Desharnais and Garry J. Heard

INTRODUCTION

This report contains a collection of non-acoustic data gathered during the TTCP sea trial RDS-2. The data were collected on the three ships that participated in the trial: FRV Southern Surveyor, HMNZS Manawanui and TSMV Pacific Conquest. The trial took place in the Timor Sea, North of Australia, about 100 miles west of the city of Darwin, during the period 29 October - 12 November 1998.

PRINCIPAL RESULTS

The non-acoustic data found in this report include: a quick reference chart of the acoustic experiments conducted, the scientific logs, reduced positional information for two of the research vessels, bridge logs from all three vessels, sea temperature profiles, sea current profiles, information on the Sonar Research Projector, information on the four charge runs conducted, aircraft logs for both flights and tape logs.

MILITARY RELEVANCE

The RDS-2 sea trial was a TTCP Subgroup G initiated multinational collaborative trial of concepts related to rapidly deployable underwater systems. The endorsed aim of the trial was to test and demonstrate advance deployable array technologies and advanced data recovery methods and to test rapid array deployment techniques. RDS-2 was the second of three collaborative sea tests proposed by the RDS working group. This document provides sufficient information to allow researchers to analyse the acoustic data of interest to each of the five contributing nations.

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1. INTRODUCTION

This report contains a collection of non-acoustic data gathered during the TTCP sea trial RDS-2. The data were collected on the three ships that participated in the trial: FRV Southern Surveyor, HMNZS Manawanui and TSMV Pacific Conquest. The trial took place in the shallow waters of northern Australia, about 100 miles west of the city of Darwin, during the period 29 October - 12 November 1998. The nominal location of the trial was 12°20'S 128°20'E.

On board FRV Southern Surveyor were the Australian participants (including the Trial Director) and the Canadian observers. The Australian Autonomous Buoy Measurement Sensor (ABES), Sonar Research Projector (SRP) and current meter were deployed from this platform, as well as the explosive charges. The UK participants were mostly on TSMV Pacific Conquest. The following pieces of equipment were deployed and/or monitored from TSMV Pacific Conquest: US OCTOPUS planar array, the US and UK receive arrays for acoustic communications, the UK Ultra Lightweight Rapidly deployable In-line Conventional Arrays (ULRICAs), in either horizontal or vertical configurations, and the Australian Demonstration Off-Platform Sensor System (DOPSS), or bottom array of Barra hydrophones. The US team was split over the three ships. The US ULITE (Ultra Lite) Y-shaped bottom array was monitored from the HMNZS Manawanui, as well as the US transmit array for acoustic communications and the UK Fibre Optic Deployable Array (FODA) and the UK Ocean Bottom Sensor (OBS) seabed array. The New Zealand observer was on board HMNZS Manawanui.

The following two pages include a quick reference chart for the trial, and a list of the people involved with the experiments at sea. The following sections include most of the non-acoustic information collected onboard the three ships, as well as from the two aircraft flights.

Table 1. Quick reference chart for the RDS-2 trial. Green boxes indicate that the given system was functioning properly during the time period, or the given experiment happened during the time period. Yellow boxes indicate that data of unknown quality were collected with the given system during the time period. Red boxes indicate the system was not functioning properly.

Date	29			30			31			1			2			3			4			5			6			7			8			9			10			11		
Time	0	8	16	0	8	16	0	8	16	0	8	16	0	8	16	0	8	16	0	8	16	0	8	16	0	8	16	0	8	16	0	8	16	0	8	16	0	8	16	0	8	16
EQUIPMENT																																											
DSTO DOPSS																															■							■					
DSTO SEA NOISE BUOY											■	■															■					■	■	■	■	■	■	■	■	■	■			
DERA ULRICA VLA														■	■	■	■	■	■				■															■					
DERA ULRICA HLA		■	■	■	■	■	■	■			■	■	■	■	■	■	■	■	■			■	■		■	■	■											■					
DERA OBS ARRAY				■	■	■	■	■							■	■			■	■																							
DERA GEOPHONE																																			■								
DERA FODA ARRAY																■								■			■	■															
NRAD ULITE Y-ARRAY	▨	▨	▨	▨	■	▨	▨	▨	▨	■	■	■	■	■	■	■	■	■	■	■	▨	▨	▨		■	■	■		■	■	■	■	■	■								
NRAD ABES VLA																																		■	■	■		■					
NRAD OCTOPUS ARRAY						■	■	■								■						■	■	■																		
NRL COMMS ARRAY																																		■			■	■				
EXPERIMENTS																																											
SEISMIC DETECTION												■	■								■	■																					
MATCHED FIELD																■	■		■						■	■				■		■	■										
PASSIVE DETECTION																■								■	■					■												
AMBIENT NOISE		■								■	■		■	■	■	■				■					■	■					■										
DERA COMMS																																											
NRL COMMS																																		■			■	■				
SONOBUOY MEASUREMENTS									■	■						■																									
BROADBAND AEL										■				■			■														■											
ACTIVE ENVIRONMENT																																					■					
PLATFORM/GEAR OPS																																											
ROV																																											
SRP PROJECTOR											■	■				■	■		■						■	■	■			■		■	■						■	■			
AIRCRAFT									■	■						■																									
LIGHT BULBS		■										■		■			■	■						■			■			■	■													
SUS CHARGES										■		■	■										■															■					
PAC CONQ CTD											■						■	■																								
SOUTH SURV CTD											■		■																												
MANAWANUI CTD																																											
XBT/XSV													■	■		■	■		■				■			■	■				■		■	■										
CURRENT PROFILER																■			■	■	■		■	■			■	■															

People of RDS-2

Southern Surveyor

Ian Cox

Chris Gillard

Terry Trainor

Ian Woon

John Van Velzen

Kathy Leak

Trevor Jackson

Philip Jackson

Mark Stevenson

Jeffrey Schindall

Earl Carey

Francine Desharnais

Garry Heard

Sue Briest

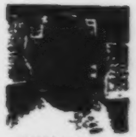
Manawanui

Gary Armstrong

Geoffrey Granch

Chris Loh

Keyko Vincent McDonald


Bill Marn

Alan Fronk

Chris Fletcher

Phil Nash

Azmi Al-Kurd

Pacific Conquest

Bill Fagg

Alan Parsons

Steve Pointer

Colin Mead

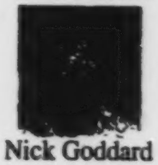
Peter Rapson

Richard Brind

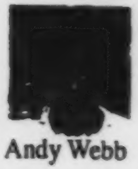
Andy Kerr

Simon Balistrari

Jonathon Davies


Nick Goddard

Simon Gardner


Andy Webb

Bruce Williams

Sean Biehl

T.C. Yang

2. SCIENTIFIC LOGS

This section includes:

- 2.1 Scientific log from the Trial Director: Ian Cox, onboard FRV Southern Surveyor.
- 2.2 Complementary log from the Canadian observers, onboard FRV Southern Surveyor.
- 2.3 Scientific log from the UK team, onboard TSMV Pacific Conquest.
- 2.4 Scientific log from Dr Bruce Williams (US), onboard TSMV Pacific Conquest.
- 2.5 Excerpts from the log of Mark Stevenson, onboard FRV Southern Surveyor.
- 2.6 Excerpts from the log of the US ULITE team, onboard HMNZS Manawanui.

2.1 Scientific log from the Trial Director: Ian Cox, onboard FRV Southern Surveyor

RDS2 log - I Cox

lo = local Darwin time
U = UTC time

29/10/98 19:24.20(lo) transiting to trials site, calm seas,

U2207/29 at trials site (probably have been for some time)

Contacted PC (ch 9) and informed them of MN delay ETA ~0900/30, wfagg said the fishing was excellent last night – tuna mackerel delicious, ulrica deployed yesterday and still down but will recover today, intention to deploy octopus, will not start deploying obs until ~ 1500 lo because of their experience of the hot working conditions yesterday – "mad dogs and Englishmen out in the mid day sun"

SS (DSTO) was not without problems last night, the a/c on dogbox of SRP bas broken pipework with loss of all refrigerant gas, so unable to cool. Proposed solution to contact ME in Darwin to find suitable top mounted caravan aircon set and arrange Beaver a/c to deliver, subject to range of a/c, may have to transit part way back Darwin to cut down a/c travel. Kathy to ring Kevin Godfrey to arrange an order for purchase.

Sea conditions very calm at site

U2322/29 Ship SS maintaining due nth heading for mobile-sat phone. Sending request for PO to DSTO Salisbury. PC moving closer to recover Ulrica.

U0002/30 0932lo/30· MN still not insight, looks like PC is trying to find the ULRICA array. Tried raising MN via INMARSAT phone number but SS Optus mobile –sat indicates "check the number" ?? what is MN's number.

U0014/30 called Navy Port Services about MN's ETA, she left Darwin @ 2200lo last night, should show ~ 1200-1300lo. This does not allow MS to deploy the ULITE at 1130-1330lo. Next slack tidal period is 1930lo according to the tide tables & chart info. We will try for 1700 start. Need to get SB across to MN when it arrives.

U0210/30 MN off stb side heading to PC. DSTO Sal/Darwin has located aircon set, Master SS now discussing with pilot about weather conditions at site for delivery.

U0314/30	MN starting mooring run. PC primary objective today is to recover ULRICA which has not responded to acoustic release or backup timed release. Octopus will not be deployed as previously indicated until tomorrow. OBS to be deployed am 31/10. SS still intends to deploy ULITE ~ 1700 – with 2 SS boats & 1 MN boat.
U0359/30	MN moored at 12 12 S 128 18.85 E. PC grappling for lost array.
U0425/30	MN putting boat overside for transfer of SB to monitor & prepare ULITE Rx. PC still grappling for lost array.
U0448/30	SB off SS courtesy MN. Sea plane left ~ 20 mins ago, should be here 1530.
U0532/30	Comms with Bronco ch 9 not good, no one appears to be monitoring the radio.
U0622/30	A/C arrival imminent.
U0645/30	A/C aborted attempts to land, swell > than 0.5, will contact later , probably for an early morning delivery, Tele 0411 704 651.
U0725/30	C Gillard back on SS.
U0738/30	kiwi wkbt with 3 ULITE to Boffin, ready for ULITE deployment
U0747/30	3 ULITE on SS ready for deploy't, MS to MN
U0813/30	2 Ulite boats loaded & ready to head to deployment site for ulite 12 20S,128 21E
U0839/30	MN wkbt on its way out with the surface buoy – seems they also have problems.
U0852/30	US aborting deployment
U1011/30	MS back on board, have discussed with MS, Bronco & Kiwi, we will transit back to Darwin to p/u the aircon. ETA of Darwin wharf 0730 local/31. MN has asked us to p/u their mail. Have DHL consignment No and contacts for Darwin Naval Base Port Services to arrange delivery of forwarded mail. Will try contacting the mobile number around 0600 or there abouts.
U2100/30	0630lo/31: called Darwin Port services 24 hr number inquiring whether SS could p/u MN mail on DHL consignment note 1665416620. Bernadette Gately will investigate and I should ring back in ~20 mins.
U2122/30	Rang back PS, no mail, due Monday.
U2226/30	0756lo/31: just off the wharf in Darwin putting workboat overboard
U2255/30	aircon onboard, powered up & OK, now about to head back to the test site.
U2343/30	heading back to trials site ETA ~ 2100. Aircon being installed. I need to discuss with GA & WF on status of equipment and proposed activities for following day.

If ULITE is OK then best time to deploy is 0900-1100 tomorrow,

A/C due 0900 – conflict with ULITE deployment, may request laying of post E & Appendix C to A/C Trials Plan to be delayed until after ULITE has been deployed say ~ towards end of sortie 1600 ? Octopus could be deployed for this activity.

? will/has OBS been deployed today (31Nov lo) – needed for Seismic Exp on Mon 2.
? will FODA be deployed & what orientation is MN when tethered to FODA.

What noise sources need to be made when some or all of the equipment is deployed – mixture of towed noise for MF & static low level PD ?

Do I shift the SD exp to another day if OBS is not ready ?

U0401/31 underway to trials site , 90 nm to go.

U0417/31 Temporary aircon fitted and working,

U0920/31 ETA ~ U1100, conditions calm, no wind, SS 0.5-1, overcast.

U1040/31 Have ships in site, spoken to GA & WF, status ULRICA recovered this morning, OBS still being worked on – think they have identified the problem and will aim for ~ Tue deployment, Octopus successfully deployed & recovered, ULITE working out to 3 km range – will attempt deployment tomorrow ~ 0830 onwards.

U1213/31 Plan 01 Nov posted, MN & PC anchored, SS drifting, time off.

U2130/31 Just off to south of site, calling PC to confirm today's activities,(come Bill, wake up).

U2303/31 rain squall passing through, delaying ULITE deployment until rain and associated wind has stopped and reduced. No contact with P3C yet.

U2335/31 Striker on station, requested delay to post E till 1400lo, agreed. Taken pictures and then heading to start at post B. ULITE preparations underway for deployment, MN boat in the water, SS 2 boats not yet in the water. Some confusion as to who should be coming and going !!!

U0017/01 MN wkbt delivered 3 US to SS, returned with MS & JS.

U0027/01 1 SS boat in water & being loaded.

U0051/01 3 boats in the water, buoy checks ok, moving to centre of ULITE position.

U0147 ULITE in the water, unsure of state of system, they did have RF problems.

U0211/01 all boats back to mothers, transfer personnel having lunch and will then transfer, TJ & GH to MN & PC to check email & sitrep.

U0230/01 wkbt to MN with 3 ulite + 1CA + 1 Au

U0245/01 SS wkbt back – lunch

U0205/01 ULITE working OK, was some interference ? from SS radars which are now off.

U0301/01	waiting confirmation of ULITE co-ordinates and then do ontop run on way to position for start of Annex B Appendix C.
U0358/01	conducting SS ship noise run over top of centre of ULITE
U0359	ontop, SS1, wind ~4 kn
U0401	heading for 12 17, 128 20.5 SS start of Mk7 run, 5 kn Run BEM1, striker reports all working except Difar
U0450/01	Air temp. 31. deg., water temp. 29.4 deg., winds 10 kn @ 25 deg relative, SS 5 kn @ 180 deg. Cumulus build up in area with occasional showers. Sea state 1, no swell.
U0541	end Mk7 drops, speed 10 kn, Co 180 for 2 nm
U0600	end run BEM1. Striker going off to NE for further surveillance and then back to Darwin, will be back on station 0900lo Tue. Sitting still waiting for U0700 to lay Sea-noise buoy.
U0711	Seanoise buoy wind speed float in the water @ 12 25.785, 128 20.97
U0746	tail float of seanoise buoy in @ 12 26.011 128 20.554.
U0815	CTD down & up, now waiting to test lb breaker.
U0823	LB successful, now heading back to trials site to p/u personnel.
U0940	5 min to go before putting SRP overboard to work up tones for MF.
U0959	SRP in the water and generating 3 tones for MF work, tones are hopefully being monitored on ULITE
U1034	finished SRP 3 tones, recovering.
U1058	Astern of MN & PC waiting for personnel transfer.
U2148/01	On Deck again, anchor up, maneuvering closer to MN in preparation for SUS transfer at ~ 2215, calm seas, light breeze (4 kn), PC on horizon coming back from an overnight fishing trip to the NE. MN still at anchor hasn't deployed anything except her work boat.
U2210	talked to MH on Bathurst Island, he is setting up, ETA first SUS drop 0830lo
U2248	SUS onboard, heading towards BI waypoint, contacted MH on BI , ready to drop 2300, Speed 12kn, Co 070.
U2300	SUS 1 Misfire, UXO, position recorded.
U2330	SUS 2, BI recording OK , bridge log entered ~ on hr local.~ 3-4 secs after drop.
U2359	SUS 3, BI recording
U2400	SUS 4,some concern that they are going off too close to the ship, ~ 3-4 sec after drop = ~ 20 m aft , !!! too close, discussion with MH, Dcato about pressures encountered.

	Discussed with GH and Master in consultation with CSIRO & Clive Lliron, decision left to Master. Decided to try and reduce sink rate with tail drogue.
U0200/02	SUS 6, after modification with large paper wipe drogue attached, went off > 20 secs after deployment ? 200m aft. Ship happy with this range.
U0230	SUS 7, ~ 26 sec after drop, Ok from Ships company.
U0300	SUS 8, ~ 11 secs.
U0330	SUS 9, ~ 14 secs.
U0345	water depth 65.7m,
U0400	SUS 10, 35 sec.
U0430	SUS 11,~ 30 sec, ok, end of sus runs, contacted MH to say end of Series. Within 33 nm of BI, altering course for return to trials site. GECO-MY 12 nm to north of our end of run position ??? checking with a call to the ship ?? !!! Need to confirm Shell Aust with GECO-MY for this time period.. **Track 80.** At time 1410- Mo 02,lo, his position was 12 05 , 129 35.2, speed 4.6 kn.
U0536/02	Co254, Sp 11, heading back to trials site
U0732/02	Co 251, Sp 12.2, ETA ~ 2030, 40 nm from trials site.
U1017/02	Talked to MN & PC, OBS started deploy't 1130lo almost finished deployment. When SS reaches site we will t/fer Kiwi bomber and take MS back onboard. As soon as MN finished OBS deplo't it wants to get underway to run engines for couple of hrs PC has deployed one ULRICA VLA and is preparing a HLA for deployment tomorrow. VLA set to record continuous from 0900lo tomorrow. I have indicated that the PD runs can take place between 1300-1600lo tomorrow. FODA will be deployed tomorrow morning. Have arranged for a meeting aboard SS for 0930 Tue to discuss noise sequences for PD runs.
U1112	MS back on board, Kiwi back to MN, setting up to do triangular run on ULITE & 2 knots
U1138/02	XBT finished.
U1156/02	Co 135, sp2.4 kn on first leg of triangle for ULITE
U1206/02	turning first corner 240 deg turn
U1213	commencing Track #2 ULITE.
U1226	end track 2 ULITE, turning now.
U1233	Commence track 3 ULITE.

U1249	Comm track #4, ULITE co 164/155, 4 kn, 1.5 km to run
U1303	end track 4, making turn now.
U1309	start track #5.
U1320	end #5, turning now
U1330	track #6, sp 4.
U1336	end #6, end of ULITE positioning run.
U1358	off to bed.
U2309/02	MN heading off to do a decoke on engines, it will be back at ~1030, meeting originally planned for 0930 now at 1030 when KIWI gets back. Seas calm.3 kn breeze , SeaState 0.5, SS at anchor. We had planned to do PD runs between 1300-1600 but this may be changed in light of the meeting. Expecting Striker back soon. Post E to be 12 26, 128 21
U2350/02	"Striker has been struck", striker called on phone, delayed ~ 1.5 hrs. bird strike after take off
U0042/03	striker called again , still on ground in darwin waiting paperwork from Edinburgh. PC & MN close by ready for personnel transfer for Tones meeting.
U0100	Meeting of some participants to brief current status and to determine
U0304/03	Striker at post B, going to do posts in order of B A E D C
U0345/03	Striker reports engine problems over post B, will return to Darwin & investigate contact on way back.
U0418	still waiting for all equipment to be laid, esp FODA, Octopus at 12 20,128 21.
U0430/03	KIWI reports FODA riser line parted from array, sending divers down to check screws, will move to its designated position when ready. Will probably recover FODA tomorrow.
U0452/03	Ends of FODA 12 19.335, 128 19.288; 12 19.581, 128 19.125
U0520-0603	positioning all ships for Passive Det'n run @ position 12 20,128 21
U0618	SS completely shut down.
U0622-0642	Sequence PD1- NB2, BB2, NB1
U0649	powering up SS
U0711	moving towards SS for personnel transfer. Bronco requires projector tones pm to be determined.
U0731	KIWI position during PD1 : 12 19.84, 128 19.18

U0813	Transfer complete
U0817	BRONCO position duringPD1 12 17.68, 128 23.5
U0946/03	Plan for tonight is to deploy SRP at ~ U1130 (2100lo) starting 12 20 128 21, head Co 000, sp 3 kn, run for 6-7 nm. Inform ULITE when transmitting.
U1140	Start TOW 2, co ~ 000, sp 3, start @ 12 20,128 21, Radial tow from ULRICAH, ULITE also recording, ULITE reports 70 Hz outstanding, 110 not so good. From Jess, water temp 29 deg.
U13 21	end Tow 2 Goodnight!!!!___________________________
U2238/03	Back on deck
U2327/03	SS holding station against current from SE, with 2 kn showing on the log.
U2342	heading to waypoint start for MS(NB) MF run
U2400	putting fish into the water.
U0015/04	on track for start of Tow 3
U0016	Start Tow 3,- 4 kn tow, fish @ 50 m, 80 & 110 Hz tones @ 155 each.
U0109/04	SS0, conditions perfect.
U0227/04	KIWI new position 12 19.585,128 18.958.
U0506/04	FX Tow 3
U0531	at trials site transferring personnel to ships. IW/PJ to PC to checkout DOPSS, SB & AF to MN, TJ to MN
U0545	IW/PJ unable to board PC because of criticality of current work , will try later. MS applying another fix to ULITE mooring
U0817	at anchor, early night !!!

U2126/04	ondeck again, Roger Pepper informed me of the good & bad news !! Good news – current meter is still in the cable, Bad news – the winch brake went slack last night and the current meter eventually went to the bottom. When Rpepper checked it ~ 0530 lo he noticed the cable was slack, they raised it back to 50 m. Unknown how long it was on the bottom.
U2325	KIWI Toby & Chris Loh onboard, Bill Mam also rider for today.
U2331	MH called, he has been delayed, got to GEEBUNG ~ 20 minutes ago, will be ready in 45 mins. Unable to do Ongines Off & On measurement from ULITE. Will get engines on and head for GEEBUNG to start SD2 on the half hour starting at U 2400.
U2349	departing site for Geebung

U2352	co 206,sp coming up to 12.5 kn
U0030/05	SD2/1, 35 secs, dropped close to Heard's Hill.
U0101	SD2/2, 42 secs, water shallow @ 102 (corrected for draft)
U0116	passing through squall, SS3, winds 30 kn from SSE
U0130	SD2/3, 31 secs
U0201/05	SD2/4,62 secs
U0230	SD2/5, 31 secs.
U0300	SD2/6, ? secs
U0330	SD2/7, 33 secs, sp 12.1, co 205
U0401/05	SD2/8, 4 secs, sp 12.1, co 205 ?????????????????
U0433/05	SD2/9, DUD, reversing course t0 025 12 kn
U0503/05	SD2/10, 30 sec on reverse course 025, sp 11.8, 57.8 nm from site,72.2 nm from Geebung
U0531/05	SD2/11, ? sec, co 025, sp 12
U0559/05	SD2/12, ? sec.
U0632/05	SD2/13, UXO.????
U1015	Back at trials site. MN shifted 1000 ft on anchors, when raising stern anchor the FODA O/F cable was entangled with the anchor. MS says wind 35-40 kn. Not much work done from MN today. Ulite riser cable damaged, will attempt to replace tomorrow some time, MN will use divers to attempt recovery of the OF cable. PC rode the storm, their estimate that stern of PC moving about 15 ft still. Weather appears to have settled although winds are still now 13 kn. PC has deployed Octopus & ULRICAH @ 12 10.761,128 15.171: 12 10.862, 128 15.204 Octopus @ 12 10.708, 128 15.016
U1036	at anchor, tomorrow we will decide what to do, current meter in at 50 m, hope the winch brake is firmly on this time!!
U1104	PC successfully deployed ULRICAV @ 12 21.849, 128 20.934. FAX received from PC(Alan Parsons) outlining their requirements for the next days

U2130/05	Morning // At anchor, sea conditions not good for small boat working, winds 14 kn from Nth, will not be able to dangle fish overboard to do PD runs.
U2203	low tidal stream at present.
U2320	Pacific Spear, 11kn, co 272, rig tender ship, 330 deg from SS, rg 4nm

U2352/05	Underway to recover sea-noise buoy. MN wants to recover the FODA OF riser cable do a repair, this means up anchor & shifting to a location closer to the ULITE buoy and deployed arrays. If the wind come up as for yesterday and depending upon speed & direction there could be a chance of damage to the deployed ULITE. — My preference is to fully recover the FODA & repair & re-deploy. AP is in agreement, PNash is thinking about it, GA is in agreement. Waiting for P Nash. The priority should be working or near working arrays
U0029/06	Unable to locate Sea-noise buoy, will return to trials site and assess option of DOPSS deployment today.
U0107	standing off PC which is deploying an ULRICAH
U0255/06	ULRICAH 12.21.325, 128 20.786 : 12 21.399, 128 20.836 ,, B/S brg HLA = 210 (w) & 030 (e)
U0404/06	just NE of ULRICAH ~ 030 from array field getting ready to do PD run. Fish in the water, AN1 during this period.
U0409/06	set to commence PD2-NB1 for this condition the ship has engine off but aux generator on, SRP gen on and Blast Freezer refrigeration system shut down(system behind OPS room), record for 5 min
U0415	Stop PD2-NB1
U0423/06	switching ship off
U04326	all shut down, SS drifting, fish in the water
U0436/06	PD3 series begins, full sequence less AN1
U0502/06	end PD3
U0515/06	engine on, & getting ready to shift location
U0549/06	@ second point ~ 2nm from ULRICAH on bg ~ 030, fish into the water
U0554	@ 2nd point, MN rg 3.37, bg 268 T
U0604/06	start PD4-AN1
U0620	end BB1
U0630	end PD4 series, powering up ready to get under way fro radials tow towards HLA from point ~ 7 nm from array.
U0747/06	start TOW 4-NB3, end ? @ 12 15.47, 1218 24.34
U1046	on track fish in the water, one tone 55Hz max level , start TOW 5
U1250	end TOW5

U1255	heading back to Sea-noise buoy to anchor to be ready for SN recovery tomorrow morning @ ~ 0730. When anchored put current meter down to 25 m.
U2157/06	at sea-noise buoy, ready to recover, current meter has been down overnight.
U2304/06	Buoy recovered, when buoy wt lifted the anemometer buoy slowly surfaced right next to the ship.
U2320/06	Heading back to MN which is in middle of recovering the FODA
U0609/07	Meeting of players held U0330/07 to discuss plan for the next couple of days: Agreed as follows; pm Sat Seismic exp with concrete wt & mk 7 & mk 61, concurrent with UK comms exp between KIWI & PC. 2-4 DSTO personnel to PC for DOPSS investigation and preparation. Am Sun: PC deploys arrays as required. Back at site ready for DSTO personnel transfer by 1145. 1200-1645 PD run on DOPSS & any other arrays pm MF & propagation runs combined with 1 or 2 tones Mon am; NRL personnel arrive, comms setup and exp. Mon pm; Active Environment Measurement exp on ULRICA & TC VLA Tue; am; Comms exp Tue; pm ? 2 DOPSS Wed; Recovery Wed; begin transit Thu 0800 alongside in Darwin
U ???	Mark & Sue back from fixing and testing ULITE
U1234/07	Up anchor, going to drift for some time to while radiating tones from SRP
U1244/07	start DRIFT 01- NB5, 7 NB tones, SS in partial shut down, engine off, blast freezer compressor off, drifting with the tidal stream which is now rising and to the NW for this period.
U1400/07	End DRIFT 01-NB5. Putting anchor down for the night.

U2140	up anchor getting ready to leave SS wkbt with MN so that the shortened version of FODA 32->8 & DSTO supplied 3.2 mm fibre riser can be deployed.
U2300	commence Sea-noise deployment
U ???	end Sea-noise deployment

U0227/08	Boat transfer 2 to MN, 4 to PC, getting ready for DOPSS & PD –5 series, KIWI @ 12 19.377,128 18.519
U0333/08	all shut down, @ PD5 start of 12 20, 128 23.5, ~ 3 nm from intended DPOSS deployment site of 12 19.3, 128 20.5
U0352	Pc on heading ready to deploy DOPSS
U0408	Delay to deploying DOPSS, crane reach not enough to put over the back of PC, need an extension which will take ~ 20 mins
U0430	PC on course, ready to drop again, kn wind from Nth, SS drifting ready and waiting for the start of the series.
U0449	DOPSS deployed but no signal.
U0449/08	Commence PD5 series
U0511	End PD5 series, getting ready to shift to new position.
U0525	shifting to 12 20, 128 25 for start of PD6 series
U0547	@ new position, allowing ship to settle
U0553	shutting down now
U0600	fish in the water to 50m
U0602	Commex PD6 Series
U0629	FX PD6 series.
U	inbound co 270, sp 11, to pass over Ulite nth /sth leg, will travel 1 nm through and turn & make for KIWI & transfer personnel.
U	inbound co 270, sp 11, to pass over Ulite nth /sth leg, will travel 1 nm through and turn & make for KIWI & transfer personnel.
U0909	Start PD7 series
U0935	end PD7 series,
U0942	engine on, inbound @ 10 kn right past ULITE array.
U0954/08	commencing run towards Ulite
U1135	Start TOW 6, stop @ 1315
U2130(0700lo)	Launceston arrived with TC, Earl Carey & Azmi, TT and Chris Fletcher back to Darwin. Current schedule is to allow Acoms set to work and gather data.

U0100/09	Visited Garry Armstrong and MN, spoke to CO, he is happy to be sitting on site.
U0335	From Mark Stevenson : ABES deployed @ 12 19.391,128 18.877, set to 30 m clearance from surface to top of submerged float.
U	ACOMMs preparation
U0652	start ACOMMs run RDS1-Outbound. Co 090, sp 4, 2hrs out, 2 hrs in.
U0743	Bronco rg 4.74nm @ brg 295, KIWI rg 5.2 nm @ brg 264
U0753	SRP power amp down , terminated run @ 0757
U0852	@ trials site
U0932	Block Drop #1
U0950	Block Drop #2
U1000	MS setting up to do triangular runs about ULITE.
U11??	End of one triangular run
U1143	Earl arrived back on board SS
U????	?? another triangular run for ULITE

?????????????????????????????????

U2317/10	~ 3 nm from DOPSS deployment site, ready to put the fish in the water
U2323	fish in, shutting down engine
U2326	at depth,
U2324	Commence **PD8-NB1** sequence, tone generating BS ship completely shut down
U2340	Blast Freezer shut off, all shut down (partial) on SS
U2344-55	end **PD8-NB1**,
U2352	call from PC, DOPSS didn't work , no signal on fibre, they will recover system (must have held on to deployment rope and waited for a signal to indicate correct operation before letting go)
U2356	fish up
U0028/10	moving to the 5 nm position to do GHCG SUS run towards UVLA
U039/10	DOPSS recovered, PC moving over to UVLA to turn it on.

U0135/10	starting **SUS Run on UVLA** ~ 5 nm range, SS co261,sp11.8, No ULITE because of orientation of KIWI, Drops 1& 2 @ ~ 4.7nm rg Drops 3 & 4 @ ~ 4 nm rg Drops 5 & 6 @ ~ 3.1,3.0 rg Drops 7 & 8 @ ~ 2.1,2.0 rg
U0209	ship shut down ~ 1nm from UVLA – 2SUS, 30 sec apart. **END SUS run on UVLA**
U0301	SS co180, getting ready to turn & heaed north for run past VLA for LFM run(Active Environment)
U0307	another rain squall !!!
U0310	fish into the water to 50 m.
U0316	**CX LFM-1 run**, (R Gaus AE2 run)
U0357	2nm nth of UVLA
U0413	**FX LFM-1 run**
U????	1425lo, KEYKO back of to the rock, Allan Fronk on SS to measure range of RF link of buoy.
U0523	fish out of water, heading towards PC to get DSTO personnel aboard
U	1507lo, 4 personnel aboard from PC
U0619	on track co145, sp 2.3, fish back into the water
U0620	**CX ACOMMS EXP – called RDS1 sequence** – 10 % duty cycle on SRP
U0645	KIWI rg1.8, bg330, BRONCO rg2.3,bg317, SS co150, sp3.8
U0745	Range & brgs from SS, PC rg5.7nm, brg333T: MN rg6.4, brg321T, MN's position anchored is 12 19.88S, 128 18 93S, she anchored there at ~ 1400lo tue 10, approx distance between PC & MN is 1 4nm
U0815	**FX ACOMMS RDS1 SEQUENCE**
U0821	SS turning now to head back towards PC & MN
U0823	**CX ACOMMS RDS2 sequence**
U0830	on track co 330, sp 3.1kn; MN rg 8.01nm, brg 324;PC rg 8.57nm, brg 335
U0935/10	SS co 330, sp 3.1kn; MN rg 3.95 nm, brg 338 ;PC rg 3.81 nm, brg 303
U1042	**FX RDS2 sequence**
U1126	boat transfer at end of sequence, MS & SB back on board SS

U1135	2 ships & 12 nm acknowledged radio call, 2 US warships on co 070, sp 16 kn
U1136	MN 1.6nm, PC 3.2 nm
U1137	**CX ACOMMS RDS3 sequence**
U1157	MN rg 3.03, brg 320 PC rg 4.3 brg 253 USlg rg 5.75brg 34 USsm rg 5.75brg 5.3
U0925	MN rg 4.94, brg 316 PC rg 5.75brg 263 USlg rg 9.7 brg 61 USsm rg 8.25brg 44
U0935	MN rg 5.43, brg 267 PC rg 6.1 brg 315 USlg rg 11.1brg 66 USsm rg 9.5 brg 53
U1242	**FX RDS3 sequence**
U1243	**CX RDS1 sequence,** SS making turn ~ 180 deg, turning to a co 290,sp 3.4
U1254	SS sp 2.9, co 295
U1301	message from PC, appear to be sending RDS3 sequence, **FX aborted**
U1302	restart correct sequence, **FX RDS1 SEQUENCE**, SS inbound ~ 6.1 nm from both PC & MN
U1336	SS co 296, sp 3.3, 4.6 nm from MN
U13??	**FX RDS1 seq**
U1355-16	**CX RDS4 sequence, inbound**, SS co 295, sp 3.3kn; instead of turn around because PC-MN separated by ~6.5nm, SS-PC & SS-MN ~ 4nm
U1452	MN 3.95nm, brg 40 PC 3 nm brg 204 ——————— C Gillard & G Heard taking over
	Unable to do Dead In Water runs because ships engineers have retired, DIW runs require some time to shut engine, engine need to be under load rather than idling for a long period. ?? don't know what will be substituted for these ACOMMS runs, leave to CG & GH to sort out. TJ & PJ at SRP, KL & JVV off.
U1500	**FX RDS4**
U150???	**CX RDS5**
U1532	MN rg 5.3, PC rg4.2

U1557	MN rg 6.2, PC 5.8 , ?? SS co 295 ??
U1605	FX RDS5, SS turning around for inbound run
U1624	CX RDS6
U1730	FX RDS6
U1737	CX RDS7 ?? SS course ??
U1820	FX RDS7
U1827	CX RDS 8
U1906	FX RDS 8,
U1912	CX RDS 9
U200?????	FX RDS 9
	???? RDS 7,8,9 conducted with SS moving in figure 8 between MN & PC ???? — update to be provided by Chris Gillard
U????	~ 0730 lo, Sea noise buoy start recovery, end ~ 0815 lo
U0000	start recovery of ULITE, ABES has been sighted on echo sounder but unable to grapple for it, 1st priority is recovery of ULITE.
U0130	recovery still in progress, raining, just what is needed for recovery. MN intentions to sail from the site ~ 1600, PC ~ 1200-1400, SS ASAP and head for Flat Top Bank for some hrs of recreational fishing, and a BBQ dinner.
U0154	ULITE recovery complete,
U0215	SS departing the trials site for a spot of fishing !!!!

END

2.2 Complementary log from the Canadian observers, onboard FRV Southern Surveyor

UTC TIME = LOCAL TIME - 9.5

ABBREVIATIONS: **SS = SOUTHERN SURVEYOR**
PC = PACIFIC CONQUEST
MN = MANAWANUI
L = LOCAL TIME, Z = UTC TIME.

Local UTC Entry

29 October (Date based on local time)

14:00L 04:30Z Depart Darwin. Seas are calm and winds light.

16:00L 06:30Z The Manawanui passed us on its way back to port. She reports massive hydraulics failure. They expect to be on station only a few hours late.

30 October (Friday)

08:00L 22:30Z The Manawanui is expected back on station for 19:00Z (9:30L). Problems were found yesterday with the air conditioning system attached to the projector ops room (SRP). A new air conditioner is ordered.

09:45L 00:15Z Update: Manawanui expected for 22:00Z (12:30L).

10:30L 01:00Z Rain squalls for about one hour. Winds picked up to about 15 knots, then went back down to 5-6 kn. Several other rain squalls are seen in the area.

12:00L 02:30Z The Manawanui and the Pacific Conquest are here. One of the ULRICA arrays is down (but not heard???)

13:30L 04:00Z MN is moored and is getting ready to deploy the OBS array. They will then deploy the UK ODLA. PC is trying to recover an ULRICA array which has failed to respond to acoustic command/ automatic time release. Sue Briest and Mark Stevenson are about to be transferred to MN. Winds now are about 6-7 kn (occasional thunderstorms in the area). Forecast is 10-15 kn with scattered thunderstorms.

14:15L 04:45Z Sue's transferred to MN.

15:00L 05:30Z See RDS-2 array deployment status (obtained from Terry Trainor).

16:00L06:30Z A floatplane from Darwin tried to land near the ships to deliver new air conditioning unit for projector ops room. Landing cancelled due to high swell (0.5-1 m). The plane will try again tomorrow morning.

16:30L07:00Z A first attempt at deploying the ULITE array, using 2 work boats from SS and 1 from MN (?). Due to a telemetry problem, everything was recovered.

19:00L09:30Z Due to the uncertainty of a successful floatplane landing tomorrow, it was decided that SS will return to Darwin to pick up the air conditioner.

31 October (Saturday)

08:00L22:30Z SS stopped short of Darwin and sent work boat to pick up air conditioning system. Returning to site.

21:00L11:30Z SS back on station. The temperature has come down some during the day, and clouds gradually moved in. There's also a bit of a swell.

1 November (Sunday)

08:00L22:30Z While we were in transit yesterday, ULRICA was recovered by PC, Octopus was deployed and recovered. People on PC are now working at fixing the telemetry buoy on the OBS (which didn't get deployed). OBS deployment planned for Tuesday.

Temperature this morning is still cool, rain started recently, one white cap here and there (sea state 2, no swell).

08:30L23:00Z Winds 12-13kn @ 65° relative. Ship 1.7 kn @75° (and turning). Temperature air 34°??? Water 24.9°. We're waiting for the rain to stop to deploy ULITE.

09:00L23:30Z First light bulb breaker test. Doesn't work too well because of sharp breaker plunger. John Van Velsen is modifying it. The aircraft is circling on top. They will deploy sonobuoys at Post A, B, C, and D and monitor traffic. Post E is delayed till 14:00L (04:30Z). Rain has stopped. AN Buoy will be deployed later.

09:20L23:50Z Getting ready for personnel transfer.

09:30L00:00Z Wind appears to have died down a bit. Sea surface is smoother, but a 2' swell is developing. Rain is seen further away.

09:35L00:05Z Work boat arrives from MN. 3 US come on board SS, Jeff Schindall and Mark Stevenson go back to MN. Meanwhile, SS people are working on the SRP set up.

10:15L00:45Z 2 SS workboats launched with US people to deploy Ulite.

10:30L01:00Z 2nd attempt with bulb breaker. More work required.

11:00L01:30Z Sky cleared up. SS1

11:20L01:50Z Ulite deployment over. Everything seems to be working ok.

11:40L02:10Z Garry Heard and Trevor Jackson go to MN and PC for collection of intelligence and other stuff…

13:30L04:00Z SS has been maneuvering around Ulite, passing through legs at 5 kn, bearing 210°. A least 1 or 2 ships other than RDS team are seen in area. See SS log.

14:00L04:30Z P3C on top. SS a few kms away from Ulite, getting ready to start SUS run (Appendix C of Annex B). The weather has been improving steadily throughout the day. Now it is sunny with cumulus build up. We can see several rain showers mostly North of us.

14:12L? 04:42ZSUS run BEM1 starts (MK 7).

SUS#	**drop time**	**boom time**	**Latitude @drop**	**Longitude @drop**	**Approximate range (nm)**
1	**04:46:13**	**?**	**12°17.7625**	**128°20.6770**	**0.0**
2	**04:50:48**	**?**	**12°18.2289**	**128°20.6687**	**0.5**
3	**04:56:43**	**?**	**12°18.7519**	**128°20.6756**	**1.0**
4	**05:02:28**	**?**	**12°19.2440**	**128°20.6782**	**1.5**
5	**05:08:09**	**05:08:18**	**12°19.7360**	**128°20.6796**	**2.0**
6	**05:13:52**	**05:14:10**	**12°20.2222**	**128°20.6731**	**2.5**
7	**05:19:38**	**05:19:50**	**12°20.7100**	**128°20.6572**	**3.0**
8	**05:25:40**	**05:25:51**	**12°21.2163**	**128°20.6240**	**3.5**
9	**05:31:46**	**05:32:03**	**12°21.7388**	**128°20.5713**	**4.0**
10	**05:36:53**	**05:37:04**	**12°22.2100**	**128°20.5136**	**4.5**
11	**05:40:52**	**05:41:00**	**12°22.5500**	**128°20.4762**	**5.0**

15:12L05:42Z end of SUS run. We're going further out to deploy ambient noise buoy. The buoy is being prepared. Data are self-recorded. Noise is averaged in 30-sec periods and is recorded every 15 min. over 4.5 days, as well as wind speed (not direction). Anemometer is 2.3m above sea level. Hydrophone is 50 m above seafloor. Water depth at location is 105.9 m. Spectrum is continuous (not band averaged) up to 15 kHz.

16:30L07:00Z Start noise buoy deployment. Sky is now clear, sea state 0.5.
16:39L07:09:06Z Anemometer buoy deployed @ 12°25.6769'S 128°21.0318'E
16:50L07:20:13Z 1st anchor weight deployed @ 12°25.8166'S 128°20.8771'E
16:57L07:27:38Z 2nd weight (with mid-water hydrophone) deployed @ 12°25.9045'S 128°20.7965'E
17:05L07:35:05Z 3rd weight (with bottom hydrophone) deployed @ 12°25.9830'S

128°20.6884'E

17:50L 08:20Z CTD #1

19:30L 10:00Z SRP in water. 70 Hz (142.5 dB), 95 Hz (152.5 dB), 145 Hz (151.5 dB).

20:04L 10:34Z SRP transmission stops.

20:20L 10:50Z SRP trial finished.

2 November (Monday)

AM Bomb dropper arrives from MN.

08:30L 23:00Z 1st SUS of Run SD1 dropped (dud)

10:30L 01:00Z SUS cancelled. As the SUS as fairly shallow (60'), they detonate quite close to the ship. The following SUS will be equipped with a terry cloth parachute to delay the explosion.

11:00L 01:30 We can see a lot of clouds ahead of the ship (70° bearing) and some rain showers. Apart from that, weather is good,

11:30L 02:00 Rain is starting (sprinkles). There's no swell, but white caps can be seen. Wind waves of about 2'. Sea state 1-2. A bigger chute was tried on the SUS, and it was delayed by about 1 minute.

11:45L 02:15Z Rain shower.

13:05Z 03:35Z XBT #1

14:00L 04:30Z Last SUS of run SD1. Returning to station.

SUS#	drop time (UTC)	boom time (UTC)	Latitude @ drop	Longitude @ drop
1	23:00:00	dud	12°18.6664	128°22.7640
2	23:29:48?	23:29:50	12°16.2327	128°28.2781
3	23:59:23	23:59:25	12°14.0191	128°33.8860
4	00:28:42	00:28:48	12°11.9637	128°39.7784
5	01:32:11	01:32:19	12°07.4440	128°52.7717
6	01:56:38	01:57:36	12°05.6869	128°57.7554
7	02:29:52	02:30:18	12°03.5763	129°04.3050
8	02:59:52	03:00:03	12°01.7766	129°10.3149
9	03:29:47	03:30:03	11°59.9888	129°16.4950
10	03:59:45	04:00:21	11°58.2500	129°22.7490
11	04:29:47	04:30:17	11°56.6363	129°29.0422

14:42L 05:12Z CTD #2.

22:45L 13:16Z XBT #2.

20:15L 10:45Z Return to site. Preparing for Ulite element localization experiment.

21:26L 11:56Z Start 1st pattern of localization experiment, ship speed 2 kn.

21:19L 12:49Z Start 2nd pattern of localization exp., ship speed 4 kn.

3 November (Tuesday)

08:00L 22:30Z Projector run delayed. MN wanted to run their engines for a while.

AM ROV trial. Water seems clear to about 55-60 m depth, and then it appears to be full of particles down to about 95 m [plankton??]. There also appears to be fair bottom currents.

AM later. People from MN and PC came for a visit: Alan Parsons, Bruce Williams, Steve Pointer, Bill Fagg, Richard Brind, Colin Mead, Kathy Leak, Francine Desharnais, Chris Gillard, Terry Trainer, Garry Heard, Ian Cox, Bill Marn, Sue Briest, Vincent McDonald, Mark Stevenson, Chris Loh.
Topics: bathymetry survey, CTD/XBT, logs, data: how do we get it?

- OBS: MN's anchor snagged array and dragged it. Also, the surface float was again damaged. No data from it yet. Array is deployed, but state of sensors is unknown.

- ULRICA: 1st deployment in water over 25 m deep. 1 HLA tangled. 1 HLA deploy/recover ok. 1 HLA and 1 VLA currently down. HLA due to come back up tomorrow 9 am.

- ULITE: deployment took just over 1 h. System has AGC. 60-70 dB in 200 Hz band at night, up to 100 dB during day. 3 tones of yesterday received (70 Hz @ 80 dB, 95 Hz @ 86 dB, 145 Hz @ 85 dB). A set of frequencies seem to be present at all times: 6, 12.5, 14.5, 19, 25.5, 29, 32, 37.9 Hz. Array wine-glass shaped due to current from the south @ 0.7 kn during deployment. Good RF telemetry.

- OCTOPUS: 1st deployment OK, 3 or hydrophones leaked and have been replaced. Some damage during recovery. Noise @ 100-200 Hz @ 4 nm from ships, is wind generated. After sunset, fish choruses @ 600-800 Hz.

- This afternoon, sometimes between 1300 to 1600L, SS will go quiet ops with SRP. P3 should come this afternoon. They were delayed due to a bird strike. MN will deploy FODA (ODLA). This will generate noise that will probably interfere.

- Yesterday, near end of charge run, SS encountered a seismic ship with 5 km streamer. Ship was moving at 5 kn.

12:30L 03:00Z Ship anchored, SRP dipped for frequency tests. P3C arrives in area.

13:30L 04:00Z Chipping hammer on board SS for 15 min or so.

13:56L 04:26Z Chipping hammer on SS again for 10 min.

14:00L 04:30Z Weather is warm and humid today, few clouds, sea state 0.25! You've gotta love this!

14:55L 05:25Z SS anchor goes up for 10 min.

15:35L 06:05Z SS enters quiet state.

16:15L 06:45Z SS repowers systems.

16:20L 06:50Z XBT #3

21:55L 12:25Z XBT #4

Evening: Projector tow.

4 November (Wednesday)

08:00L 22:30Z Sky clear, sea state 0, hot and humid. Projector dip to start shortly, SS stationary.

11:15L 01:45Z XBT #5

12:00L 02:30Z Same weather, same activity.

13:15L 03:45Z XBT #6

14:45L 05:15Z Projector recovered.

16:30L 07:00Z Current profiler dip.

Evening: The current profiler was deployed a couple of times for full profiles, and it was left all night at 50 m depth (near bottom). Fishing people on board SS estimate currents to be about 2 kn.
Note: we found out during the night that we had winch problems. The current profiler slowly descended to the bottom, and remained there for several hours. It was lifted back to 50 m around 4am local on the 5th.

5 November (Thursday)

08:00L 22:30Z Some clouds, SS 0.5, might be rain later on.

10:00L 00:30Z First SUS charge of SD2. Although MK61 is written on the case, markings of Mk33 and Mk4 are found of parts of the charges (home made?) Presuming they're Mk61, explosion depth should be 60'. SUSes are equipped with paper drogues again to delay explosion time.

10:40L 01:10Z Rain just started. SS2, white caps.

10:48L 01:18Z 30 kn winds, now SS3, 2-3' waves (no swell). Getting ugly out there.

16:00L 06:30Z Finished run SD2. Return to station. Current profiler will be deployed overnight.

SUS#	**drop time (UTC)**	**boom time (UTC)**	**Latitude @ drop**	**Longitude @ drop**
1	**00:29:55**	**00:30:30**	**12°27.0962**	**128°15.0345**
2	**00:59:56**	**01:00:39**	**12°32.5391**	**128°12.1930**
3	**01:29:47**	**01:30:18**	**12°37.7390**	**128°09.6008**
4	**01:59:48**	**02:00:50**	**12°42.9984**	**128°07.2009**
5	**02:29:06**	**02:29:39**	**12°48.0900**	**128°04.5538**
6	**02:59:50**	**03:00:22**	**12°53.4422**	**128°01.8960**
7	**03:29:50**	**03:30:23**	**12°58.7600**	**127°59.2661**
8	**03:59:56**	**04:00:00**	**13°04.0231**	**127°56.3158**
9	**04:29:55**	**dud**	**13°09.8913**	**127°54.6054**
10	**05:01:59**	**05:02:32**	**13°05.3763**	**127°57.6045**
11	**05:29:57**	**05:30:36**	**13°00.2227**	**127°59.9157**
12	**05:59:54**	**06:00:16**	**12°54.8971**	**128°02.2185**
13	**06:29:49**	**dud**	**12°49.7300**	**128°05.1400**

Highlights from the storm:

- We got a phone call from Marshall Hall. He heard the 1st few charges, but then the wind increased and he couldn't hear them anymore (trees made too much noise??)
- We heard that MN dragged its anchor over 1 nm. While dragging, it found FODA and allowed its recovery. Floats were tied to FODA, and it was sent back to sea. Last we heard it was ripped into 2 pieces somehow.
- They've have also given up on the OBS, which is damaged beyond repairs.
- Weather calmed down around supper time [or was it tea time??...]

6 November (Friday)

08:00L 22:30Z Weather back to nice and sunny, SS 0.5.

10:00L 00:30Z SS in vicinity of ambient noise for recovery, but we can't find it. We'll go back to it later. There's a risk of the ambient noise file being rewritten over if it runs out of memory. Going back to station for projector operations.

14:37L05:07Z SS1 (0.5 m waves), no traffic in area. Rain showers 16 nm from SS @ 330°T. Rib boats in water.

14:40L05:10Z SS systems repowered.

PM + evening Projector tows.

7 November (Saturday)

08:00L22:30Z SS recovered the OZ ambient noise buoy. The anemometer was underwater; it appears to have been dragged to the bottom (mud on its base, and surface float had been crushed). All weights were recovered with gray clayish mud with lots of shells and shell pieces in it, with relatively little sand. The clay was quite sticky, clinging tenaciously to fingers even after rinsing. Weather is fine today, sunny and clear, SS 0.

NOTE: The magnetic declination for this area is 5°E. Current profiler data were not corrected for this.

13:30L04:00Z Meeting with PC people on SS. Current state of arrays:

OCTOPUS:
- 3 good data sets (including storm)
- lost one in just before the weather degraded
- 600 Hz BB oil exploration noises
- 96 Hz and harmonics persistent.

ULRICA:
- 7 deployments (2 VLA, 5 HLA), 4 downloaded so far.
- 1st one tangled, others ok.
- seismic activity dominated 1st ambient noise period. Noises are transient.
- TOW2 70 and 110 Hz: can see both tones with 0.33 Hz resolution and 2 min integration, SNR ~6 dB.
- PD1: can see all tones.

** NOTE from Ian Cox **: Seismic noise might be an airgun from Shell, period of 7 sec. We can obtain precise tracks of airgun vessel if requested. The tracks cover most of the area between 12°30'-11°S and 128°30'-129°45'E.

New plan:
- SS will put DOPSS in tomorrow
- PC will recover 2 arrays, comms experiment, deploy Octopus and 1 or 2 Ulricas.
- MN will do single geophone experiments with concrete drop and/or SUS at 1 and 2 km range.

PC will be leaving 1 day early, take off in the afternoon of the 11th. Ian Cox is still looking for 2 volunteers to leave on the 9th to make room for TC Yang & co.

Weather remained fine all day. Very warm and sunny.

Data to request from Nick:
- Ulrica VLA during positioning bulb run, storm sample, and low sea state sample.
- Ulrica HLA and VLA during match field run.

Nick will send us a copy of their tape log.

8 November (Sunday)

08:00L 22:30Z Warm and very humid. Some convection clouds. Weather may be changing. Redeploying sea noise buoy.

23:10:44Z	Weight 1	12°25.6954	128°20.3220
23:24:22Z	Weight 2	12°25.6200	128°20.2582
23:37:06Z	Weight 3	12°25.5225	128°20.1988

9 November (Monday)

07:00L 21:30Z TC Yang crew arrived (3), Terry Trainor and Chris Fletcher left for Darwin.

10:00L 00:30Z Waiting for PC to recover Ulite before starting comms experiment. A diffraction exp. With 1 oz charges is planned, if time permits.

Weather today: hot and very humid. Increasing cloudiness, some rain showers in area in late afternoon.

AM: Preps for comms exp., and recovery of an Ulrica by PC.
PM: Start comms.
18:30L 09:00Z 2 drops of big weight by SS, and fixing of SRP which stopped transmitting around 1700L (0730Z)??

23:00L 13:30Z Very heavy rain showers at site.

10 November (Tuesday)

08:00L 22:30Z SRP was fixed last night. 4 AU transfer to PC for DOPSS deployment. Keyko comes from MN to SS to type in logs of MN.

09:45L 00:15Z 2nd DOPSS deployment didn't work (fiber broke again).

11:30L 02:00Z 5 sets of 2 charges (1 oz SUS) were dropped for GHCG experiment (Garry Heard – Chris Gillard bottom diffraction experiment). The first charge of each pair was dropped to let Ulite change its gain setting. Note: Ulite was not recording…

GHCG run:

Time drop (UTC)	Time implosion (UTC)	Latitude (S)	Longitude (E)	Range to ULRICA VLA (nm)
???	01:36:09	12°20.6796	128°25.6761	<5
01:36:27	01:36:36	12°20.6867	128°25.6269	<5
01:39:58	**???**	12°20.7751	128°24.8508	4
01:40:25	01:40:35	12°20.7848	128°24.7765	4
01:44:25	01:44:36	12°20.8892	128°23.9234	3
01:44:55	01:45:06	12°20.9024	128°23.8203	3
01:49:06	01:49:16	12°21.0236	128°22.9263	2
01:49:35	01:49:45	12°21.0368	128°22.8308	2
02:08:44	02:08:55	12°21.3170	128°21.5220	1
02:09:16	02:09:25	12°21.3175	128°21.5223	1

15:00L 05:30Z AU are coming back to SS. SS about to start SRP dip for comms experiment.

15:51L 06:21Z 1st ping of comms exp.

Note on weather: Increasing cloudiness through the day. Pretty gloomy by late morning. Occasional rain in the afternoon (13:10L is one of those times). SS 1 all day, with lots of small wind waves.

17:00L 07:30Z No signs of ABES, which has been acoustically released earlier.

11 November (Wednesday)

~0700L 21:30Z Recovering sea noise buoy. Cloudy, SS 0.5.

08:30L 23:00Z SS cruising around, looking for ABES. Never found.

~0900L 23:30Z Starting Ulite recovery.

11:30L 02:00Z Ulite on board. On our way back to Darwin, after a quick fishing expedition.

12 November (Thursday)

~10:00L 00:30ZBack to Darwin.

2.3 Scientific log from the UK team, onboard TSMV Pacific Conquest

RDS 2 DAY LOG
29 October 1998
(Times are local except where specified as UTC
Local time = UTC + 9 hours 30 minutes)

TIME	Description
11:00	Ulrica practice deployment prepared: 20kg weight to simulate node, 70m strength member, 10kg intermediate weight, further 180m rope, acoustic release and Dan buoy weighted with + 30kg. Acoustic release 'A' used with burn wire release set for 2 hours.
11:06	Started to deploy, 12^0 20.308 S, 129^0 19.510 E, drifting at 0.7 knots (speed over ground). Depth=57m.
11:10	First weight ('node') on sea bed. 12^0 20.316 S, 129^0 19.440 E. 0.9 knots
11.15	Intermediate weight on sea bed. 12^0 20.325 S, 129^0 19.357 E. 0.9 knots
11:20	Deployment complete. NB no data recorded.
12:10	Acoustic release activated.
12:50	All equipment recovered.
13:00	Set off for trials area. ETA 19:30.
18:00	Arrive trials area, prepare to deploy Ulrica
20:10	Commence deployment of Ulrica, array 3, node 4, i & j command. Water depth 104m. Bridge GPS 12^0 20.016' S, 128^0 19.836'E
20:24	First weight deployed. Bridge GPS 12^0 19.978' S, 128^0 19.779' E
20:30	Second node deployed. Bridge GPS 12^0 19.965' S, 128^0 19.741 E
21:30	Ulrica has been programmed to start recording from 0930 to 1030. Ship preparing to circle array at 3 kts, 500 m radius.
21:39	PC commencing circle, anticlockwise starting at approximately 60 deg bearing at array
22:20	Completed 360^0 turn, carrying on turning
22:30	End of scheduled Ulrica recording
23:00-23:30	Ulrica programmed to record. Light bulb experiments to be performed.
23:14	Light bulb dropped 500 m south of Ulrica and imploded at 50 m depth. Depth may be less than 50 m due to current. Exact time of implosion not known. UTC time 13:44:30. Navstar GPS position 12^0 20.176' S, 128^0 19.9220' E
23:19	Imploder recovered, moving to position east of array
23:27	Lowering light imploder 500 m east of Ulrica, depth 50 m
23:29	Weight released
23:29:30	Weight impact at imploder, Navstar GPS position 12^0 19.8945' S, 128^0 20.1284' E
23:30	End of Ulrica recording
23:45	Moved to position 500 m north of Ulrica site
23:58	Ulrica power up by repeated remote transmission
23:59	Imploder lowered at site 500 m north of Ulrica array to depth 50 m

00:02:50	Weight released and implosion, (14:33:05 UTC time) NAVstar position 12° 19.5522' S, 128° 19.8577' E
00:17	Steady at position 500 m west of array Weight released
00:19:42	Impact at depth 50m, (14:49:42 UTC) 12° 19.900'S, 128° 19.5724'E, Bulb misfired – repeating drop
00:27	Lowering imploder
00:28:32	Weight dropped, 500m west of array, depth 50m
00:29:00	Impact at 12° 19.8565'S, 128° 19.5961'E (14:59:00 UTC)
	Ulrica programmed for 10 minute ambient noise measurements from ? to ?

RDS 2 DAY LOG
30 October 1998
(Times are local except where specified as UTC)

TIME	Description
06:00	Southern Surveyor arrived on station (= c/s "BOFFIN")
09:30	ULRICA marker buoy failed to surface after several attempts with acoustic release.
11:35	Sighted Manawanui (= c/s "KIWI"; PC = c/s "BRONCO")
12:35	Kiwi to commence mooring on a heading of 120°. Will confirm when ready to receive ABW, AK, RJB & SSB. ULITE to be deployed @ 17:00 at the centre of the trials site.
13:00	Commenced dragging with grappling hook. Made several runs without success. Concern that the ship could not go slowly enough to ensure weight was on sea-bed. Transferred system to ship's boat still without success.
18:30	Stopped grappling operations
19:30	Set up towed fish with sidescan.
20:30	Detected Ulrica with some consistency. It is where we thought it was.
21:05	Ulrica node/weight sighted on side scan at Relaps GPS 12^0 19.880' S, 128^0 19.8303'E, tow speed 4.2 kts
21:40	Bill has an idea.

RDS 2 D/AY LOG

31 October 1998

(Times are local except where specified as UTC)

08:30	Octopus successfully deployed
11:40	Ulrica array successfully recovered. Both release mechanisms had worked, but the buoy had become snagged on either the deployment rope or the rope from the acoustic release to the burn wire back up which may have prematurely come out of the canister.
13:40	Ulrica data successfully recovered – good data except for variable noise below 30Hz
17:00	Octopus successfully recovered

RDS 2 DAY LOG
1 November 1998
(Times are local except where specified as UTC)

TIME	Description
10.30	Acoustic release test completed. Acc Release rope was cut due to fouling of the anchor.
11:45	Following discussions with Bruce & Ian Cox the plan for the next few days are as follows. Pm deploy ULRICA as an HLA to record SUS drops starting @ 1400-1500 start pos 128 20 0.5 E, 12.17.00 S, End pos 128 20 0.5 E, 12 22 0.5 S. ULRICA to be programmed to record 1400-2200 1/11/98 & 0500-1100 2/11/98 at the end of the programmed record time the crash record function will be tested. This ULRICA will be recovered prior to lunch on 2/11/98. p.m. 2/11/98 deploy an HLA & VLA ULRICA to record SRP runs 3/11/98. OBS to be deployed a.m. 2/11/98. Octopus array to be deployed 2/11/98 and recovered 3/11/98.
13:30	Commence Ulrica deployment number 02 in HLA configuration, depth 103 m, ship heading approximately north. Acoustic release 'B', burn wire set for 24 hours. Ulrica programmed to record from 14:00-19:00 continuously, then for 9 minute periods on the hour from 19:00 to 08:00 am (02/11/98), then continuously from 08:00 to 11:00 when the array is to be recovered.
13:49	Node released at surface, Bridge GPS position 12^0 19.437'S, 128^0 22.572'E. Ship speed 1 kt
	Weight at end of acoustic array released at Relaps position 12^0 19.2686'S, 128^0 22.6622'E. No impact felt at sea bed.
14:05	End unit with surface release deployed at Bridge GPS 12^0 19.250'S, 128^0 22.608' E. End of Ulrica deployment 02. PC heading NEE away from array.
14:20	Commence SUS charge experiments. According to RDS aircraft trials plan (annex B) comprising total of 11 Mk 400 SUS charges dropped at 1km intervals from 10 km range.
14:44	Second (?) SUS charge dropped from SS at ~ 12^0 18.24'S, 128^0 20.43'E (very inaccurate taken from Relaps screen). SS heading south, NWW of Ulrica 02. SS will pass broadside to array.
14:49	SUS charge dropped from SS at ~ 12^0 18.54'S, 128^0 20.72'E
16:00	Ulite position is centred on 12^0 19.88' S 128^0 19.55' E No anchoring or deployment within 0.5 mile radius
16:50	Southern Surveyor currently has main engines shutdown and is running minimum engines for ships supply. Current GPS position: 12^0 26.09' S 128^0 20.47' E

16:50	Pacific Conquest has main engines shutdown and is running one engine for powering ships supply.
17:26	SS (one engine on) and Manawanoui (left air-conditioning on) gone silent PC went silent at 17:30
17:43	End of silent routine
18:00	Sailing towards Manawanoui to carry out boat transfers
18:38	Deploying SVP 1, Wind: none, force 0, sea state 0.
18:45	SVP Deployed at 12° 19.590 S 28° 18.568 E

RDS 2 DAY LOG

2 November 1998

(Times are local except where specified as UTC)

TIME	Description
08:00	Commence SUS charge experiments ? SS less than 1nm west of Ulrica 02. Refer to SS log.
10:06:58	Light bulb drop, 500 m north of array: 12^0 18.9633 S, 128^0 22.6736 E. Time denotes implosion time. Light bulb failed to implode.
10:12:35	Retry light bulb drop. : 12^0 18.880 S, 128^0 22.6720 E. Another misfire.
10:16	Abort light bulb experiments, commence anticlockwise circle of Ulrica 02 starting north of array, at range ~500m, speed 5.5 knots. Centre of circle is midway between start and end points of deployment and is at 12^0 19.346'S, 128^0 22.594'E
10:40	Completed turn, stopping 500 m north of array. Will attempt to drop 5 light bulbs in pentangle around array and drop bulbs directly over array
10:46:15	Light bulb implosion 500m north of array, depth 50m, at NAV GPS position: 12^0 18.9322' S, 128^0 22.7099'E, bulb failed to implode.
12:15	ULRICA turned on acoustically
13:12	ULRICA acoustic release activated. Marker buoy surfaced!
13:55	ULRICA successfully recovered
16:00	Prepare VLA deployment 03: Node 4 (Codes I/J), array 4, acoustic release B, no burn wire back up release.
18:32	Commence Ulrica VLA deployment 03 at Bridge GPS: 12^0 21.277'S, 128^0 20.839 E, depth 103m
18:34	ULRICA VLA now in water
18:37	Buoy released
18:39	Deployment complete at: NAV GPS 12^0 21.184S 128^0 20.970 E, Bridge GPS 12^0 21.265'S, 128^0 20.899'E.
20:00	Prepare HLA for deployment: Node 1 (Codes G/H), array 2, acoustic release C, burn wire set to 09:30 Wednesday 4th Nov.
22:53:15	Commence deployment of Ulrica HLA deployment 04. Node released at NAVstar position: 12^0 20.830'S, 128^0 20.863'E, depth 103 m Bridge GPS 12^0 21.912'S, 128^0 20.789'E
22:59:20	Centre weight lowered at NAVstar position: 12^0 20.812'S, 128^0 20.975'E

23:04	Centre weight may have hit sea bed, or it may have occurred previously.
23:07	Deployment complete at NAVstar GPS: 12^0 20.786'S, 128^0 21.104'E Deployment appears successfully Bridge GPS 12^0 21.868'S, 128^0 21.020'E
11:36	Deployment of OBS array on Manawanui commenced after flaking out of cables and testing of repaired data link. Position of first sinker weight on bottom 12^0 19.946S, 128^0 18.796E.
11:54	Position of MN prior to deployment of first OBS sensor unit 12^0 19.935S 128^0 18.805E.
17:36	Deployment of final OBS sensor unit 12^0 19.950S 128^0 18.578E. Array cable lying in an arc to starboard off back of MN. MN unable to move further forward on anchors to complete the deployment as planned. MN lifted bow anchor and used engines to move forward and bow thruster to attempt to maintain position. MN deployed bow anchor in new position.
22:07	Testing of system showed all units working prior to deployment of sea-bed unit. Position of deployment of final OBS buoy 12^0 19.987S 128^0 18.605E. MN had drifted to a position West of first weight while final sinker and buoy were being prepared. Array may have been dragged - cable now lying to port off the back of the ship. Prior to deployment of buoy the RF link had been damaged by an electrical short. The buoy was deployed without this unit. Plans are to repair the electronics, recover the buoy on to PC, and fit the unit.
22:30	MN attempted to recover its anchors. MN moved to the East of the OBS array to recover the stern anchor but both the Kevlar cable and the riser rope from the first sinker weight were snagged. Riser rope was cut and the first buoy recovered onto MN. The kevlar cable was freed. The array is likely to have been dragged.

RDS 2 DAY LOG
3 November 1998
(Times are local except where specified as UTC)

<table>
<tr><th>TIME</th><th colspan="6">Description</th></tr>
<tr><td>10:00</td><td colspan="6">Boat transfer to SS for planning meeting</td></tr>
<tr><td>10:23</td><td colspan="6">Deploying SVP probe number 02. Wind W, force 1, sea-state 0</td></tr>
<tr><td>10:28</td><td colspan="6">End of SVP deployment</td></tr>
<tr><td>12:00</td><td colspan="6">End of meeting on SS, boat transfers</td></tr>
<tr><td>12:00</td><td colspan="6">PC moves to position of first projector experiment to deploy the Octopus array</td></tr>
<tr><td>12:53</td><td colspan="6">Octopus array deployed at NAV GPS:

12° 19.936'S, 128° 21.120'E</td></tr>
<tr><td>14:25</td><td colspan="6">Co-ordinates of FODA clump weights are:
12 19.335 S, 128 19.288 E
12 19.581 S, 128 19.125 E</td></tr>
<tr><td>14:30</td><td colspan="6">PC ready for detection runs since 13:00. SS expects to start in 45 minutes.</td></tr>
<tr><td>14:47</td><td colspan="6">SVP 3 deployed at NAV GPS:

12° 16.703'S 128° 22.421'E
Wind E, force 1, sea state 0
Back on board 14:51</td></tr>
<tr><td>14:57</td><td colspan="6">MN having difficulty with mooring winches and anchoring will be delayed.</td></tr>
<tr><td>15:36</td><td colspan="6">Shutting down power for ambient noise experiment</td></tr>
<tr><td rowspan="19">15:47</td><td colspan="6">PD1 SEQ</td></tr>
<tr><td>Spectrum</td><td>Type</td><td>Freq Hz</td><td>Level dB</td><td>Depth m</td><td>Duration</td></tr>
<tr><td>NB2</td><td>Max narrow-band spectrum</td><td>80</td><td>148</td><td>50</td><td>5</td></tr>
<tr><td></td><td></td><td>95</td><td>145</td><td></td><td></td></tr>
<tr><td></td><td></td><td>125</td><td>145</td><td></td><td></td></tr>
<tr><td></td><td></td><td>160</td><td>147</td><td></td><td></td></tr>
<tr><td></td><td></td><td>195</td><td>147</td><td></td><td></td></tr>
<tr><td></td><td></td><td>245</td><td>147</td><td></td><td></td></tr>
<tr><td></td><td></td><td>315</td><td>145</td><td></td><td></td></tr>
<tr><td></td><td></td><td>470</td><td>141</td><td></td><td></td></tr>
<tr><td>BB1</td><td>Max Broad-band spectrum</td><td>80-800 Red 6dB/ octave</td><td>134</td><td>50</td><td>5</td></tr>
<tr><td>NB1</td><td>Quiet narrow-band spectrum</td><td>58</td><td>128.6</td><td>50</td><td>5</td></tr>
<tr><td></td><td></td><td>63</td><td>136.7</td><td></td><td></td></tr>
<tr><td></td><td></td><td>193</td><td>124.9</td><td></td><td></td></tr>
<tr><td></td><td></td><td>197</td><td>132.7</td><td></td><td></td></tr>
<tr><td></td><td></td><td>332</td><td>121.1</td><td></td><td></td></tr>
<tr><td></td><td></td><td>336</td><td>129.0</td><td></td><td></td></tr>
<tr><td></td><td></td><td>470</td><td>117.3</td><td></td><td></td></tr>
<tr><td></td><td></td><td>466</td><td>125.4</td><td></td><td></td></tr>
<tr><td>16:07</td><td colspan="6">COMEX PD1 NB1</td></tr>
<tr><td>16:12</td><td colspan="6">FINEX PD1 NB1</td></tr>
</table>

16:13	Start up auxiliary and other systems
16:15	Move to Octopus array and recover
17:35	Octopus back on deck. Recovered by lifting off the bottom from a small boat and towing to ship.
18:00	SVP 4 deployed at GPS position: 12° 19.962'S, 128° 21.115'E
18:03	SVP back on deck
18:35	Starting run with rib over VLA. Rib has fuel problems, run aborted. HLA and VLA switched on with acoustic command.
18:41	PC directly over Ulrica HLA 04 node.
18:56	**Commence experiment: Rib moving in straight course approximately over position of VLA. PC west of HLA, north, north west of VLA.**
19:02	**Rib turning through 180 degrees**
19:06	**Rib returned to Pacific Conquest. End of experiment.**
19:19	Commence circle of Ulrica 04 HLA anticlockwise at range 500m, speed 5 knots. Starting approximately west of HLA.
19:23	PC south of HLA at NAV 12° 21.056'S, 128° 21.036'E
19:25	PC south/east of HLA at NAV 12° 20.963'S, 128° 21.199'E
19:27	PC east of HLA at NAV 12° 20.745'S, 128° 21.267'E
19:28:30	PC north/east of HLA at NAV 12° 20.600'S, 128° 21.233'E
19:31	PC north of HLA at NAV 12° 20.494'S, 128° 20.944'E
19:33:30	PC north/west of HLA at NAV 12° 20.692'S, 128° 20.702'E
19:34:30	PC west of HLA at NAV 12° 20.814'S, 128° 20.694'E
19:37:30	PC south/west of HLA at NAV 12° 21.019'S, 128° 20.849'E
19:38	End of turn run. Head for 1st light position. Intend to drop 5 light bulbs at apexes of pentangle around HLA and single bulb directly above array.
19:56	Light bulb implosion south/east of HLA, **depth 20 m** at NAV GPS: 12° 20.885'S, 128° 21.037'E
20:05	Light bulb implosion north/east of HLA, **depth 50 m** at NAV GPS: 12° 20.648'S, 128° 21.188'E
20:30	2 light bulbs successful – about 6 to go. Run out of time so head away from Ulrica arrays in preparation for projector run.
21:10	COMEX run TOW 02 MF / propagation experiment. 70 Hz @ 154 dB,110 Hz @ 150 dB. Radial run centred on Ulrica HLA. Start 12° 20.0' S 128° 21.0 E course 000 at 3 knots to range of 6 nm. Source depth 50 m.
21:43	Ulite cannot detect tone at 110 Hz, too much noise from SS. Southern Surveyor is not heading directly north. Check GPS output.
22:52	FINEX run TOW 02
23:00	Return to Ulrica site to complete bulb experiments

RDS 2 DAY LOG
4 November 1998
(Times are local except where specified as UTC)

23:33	Bulb implosion to north of Ulrica HLA at NAV position: 12^0 20.489'S, 128^0 21.024'E
00:17	Bulb implosion to north/west of Ulrica HLA at NAV position: 12^0 20.551'S, 128^0 20.794'E
00:34	Bulb implosion to south/west of Ulrica HLA at NAV position: 12^0 20.967'S, 128^0 20.866'E
00:49	Possible Bulb implosion at centre of Ulrica HLA at NAV position (need to check against data later) 12^0 20.7937'S, 128^0 21.0429'E
07:15	Engines started. Heading toward HLA for recovery.
08:10	HLA did not acoustically release. VLA successfully released but surface buoy has submerged as a result of current and is no longer visible. Slack water in about 2 hours. Suspect HLA buoy also submerged by current.
0900	PC intentions today are to recover the 2 Ulrica arrays and complete repairs to OBS. SS will be doing some MF runs for Ulite.
09:45	Started MF projector run for Ulite.
10:15	VLA buoy surfaced and recovered in RIB
10:30	VLA release is on deck, rib sent to search for HLA buoy
10:42	HLA buoy sighted from ship, rib directed to location
10:48	VLA node on deck
12:00	New anchor position of Kiwi. 12^0 19.585' S 128^0 18.958' E
12:15	PC approached position of OBS surface buoy. Position of PC adjacent to buoy was 12^0 20.07 128^0 18.59 close to position buoy was dropped.
	Pulley attached to A-frame, octopus moved to upper deck
14:45	OBS surface buoy recovered for repairs. Antenna cable separated from connector. Effecting repairs.
16:00	Further rope pulled aboard PC so that condition of OBS could be assessed in TV room where there was mains (no extension lead). OBS array giving some output but data corrupted. Rope to sinker weight fraying on edge of deck. OBS array needed recovering for repair and possible deployment of limited number of elements, or return to UK. Options of recovering onto PC or MN discussed. AP and SP against recovery onto PC because of shortage of space for working with other arrays. OBS surface buoy therefore put outboard again (with a extra length of rope and a small buoy to assist recovery.
16:30	Sidescan sonar prepared for search for positions of OBS sinker weights.
18:27	GPS location of OBS sinker weights:

	12° 20.0059 S 120° 18.6513 E

RDS 2 DAY LOG
5 November 1998
(Times are local except where specified as UTC)

10:25	Ulrica HLA 05 deployed at site 8 nm North of Ulite: Start Time: 10.01 Depth: 105 Start Pos: 12^0 10.761 128^0 15.171 Speed: 0.8 knots Fin Time 10.14 Depth: 105 Fin Pos: 12^0 10.862 128^0 15.204 Speed: 0.9 knots Array 3, node 3, acoustic release D, burn wire back up set for 0730 on Sunday 8th. Recorder programmed as follows: 11:00 – 14:00 continuous 15:00 – 06:00 on 7 Nov – on for 30 min every half-hour on the hour
10:45	Octopus deployed
11:30	Winds increased to Force 7, Sea state 6, PC heading on course 125deg into wind
15:45	Started light bulb calibrations using Jon's super smasher – looks good.
16:20	Turned on Ulrica acoustically to over-ride half-hour duty cycle.
17:15	Completed light bulb calibrations. Jon's super smasher – 100% success. Times and positions of LBs. NE and N: 1545 and 1555, array not on. NW: 16:10, 12^0 10.5763 128^0 15.0211. Centre: 16:18, 12^0 10.7500 128^0 15.2639. SE: 16:27, 12^0 10.9660 128^0 15.3806. SW: 16:40, 12^0 10.9669 128^0 15.0461. N: 16:58, 12^0 10.5178 128^0 15.2598. NE: 17:12, 12^0 10.6047, 128^0 15.4633. Turned off Ulrica acoustically to return it to programmed half-hour duty cycle. Returning to Site A.
20:13	Ulrica VLA 06 deployed at Site A. Array 4, node ?, acoustic release B. New battery fitted to acoustic release B prior to deployment. 12^0 21.7605 128^0 20.9836

RDS 2 DAY LOG
6 November 1998
(Times are local except where specified as UTC)

07:00	Octopus recovery completed at ambient noise site. Returning to Site A.
08:45	Large rig tender vessel sighted passing close to ambient noise Ulrica. PACIFIC SPEAR 272° 11 knots. Jabiru to Calallis 330 Darwin.
	Ulrica HLA 07 deployed at site A Start Time: 09:47 Depth: 102 Start Pos: 12° 21.2396 128° 20.8745 Speed: 1.0 knots Fin Time 10.54 Depth: 102 Fin Pos: 12° 21.3161 128° 20.9081 Speed: 0.5 knots Array 1, node ?, acoustic release C, burn wire back up set for 0730 on Sunday 8th. Recorder programmed as follows: 1000 – 2200 6 Nov 0900 – 1400 7 Nov
11:24	Complete light bulb calibration of HLA Positions of LBs: NE: 12°21.1070 128°21.0701. N: 12°20.9843 128°20.8876. NW: 12°21.1527 128°20.6019. Centre: 12°21.4985 128°20.7364. SE: 12°21.4792 128°21.0672. SW: 12°21.2747 128°20.8912.
12:00	Complete light bulb calibration of VLA Times and positions of LBs: N: 11:32; 12°21.5195 128°20.9837. E: 11:43; 12°21.7646 128°21.2577. S: 11:51; 12°22.0254 128°20.9973. W: 12:00; 12°21.7493 128°20.7061.
12:40	Customs aircraft overflight at low altitude.
12:45	Aircraft did a repeat overflight.
13:39	Comex PD2, NB1
13:42	Main engines on PC shutdown, single generator running for ships supply
13:45	Finex NB1, preparing to shut SS down, Wind 2-3 NE, Sea State 2-3
14:06	Start PD3 NB1
14:11	Finex PD3 NB1
14:13	Start PD3 NB2
14:18	Finex PD3 NB2
14:20	Start PD3, BB1
14:25	Finex PD3, BB1
14:27	Start PD3, BB2
14:52	SS moved forward slowly and recovered the SRP fish, then proceeded to next station
15:19	Jess instructed to put the fish down to 50m

15:24	SS shutting everything down
15:33	Comex PD4, AN1
15:38	Finex PD4, AN1
15:39	Comex PD4, NB1
15:45	Finex PD4, NB1
15:46	Comex PD4, NB2
15:51	Finex PD4, NB2
15:52	Comex PD4, BB1
15:57	Finex PD4, BB1
15:58	Comex PD4, BB2
16:03	Finex PD4, BB2
16:12	SS completed 0.5 and 2 nm transmissions, and will start inward radial after Mark does ~15min work in the MN rib
17:17	Comex TOW4, NB3
19:16	Finex TOW4, NB3
20:21	Comex TOW5, NB4, run delayed
20:22	Recommence TOW5, NB4 At 55 Hz, 153.2 dB
22:10	Finex TOW5. NB4

RDS 2 DAY LOG
7 November 1998
(Times are local except where specified as UTC)

08:15	Sailing to ambient noise HLA (deployment 5) for recovery.
09:50	HLA buoy surfaced after acoustic release
10:40	HLA recovered onto deck
10:45	PC returning to Site A. Report from MN that ODLA had been recovered onto deck – 8 hydrophones operational but cable severed in several places, attempts underway to splice array into cable for possible redeployment. MN deck occupied with ODLA and fault with crane, so OBS recovery planned for tomorrow morning. Repair of Ulite riser cable planned for this afternoon. Also recovered Ulrica VLA 06 and Ulrica HLA 07 at site A.
20:55	Commencing high data rate experiments. Comex DERA QPSK 1 Range 998m. Array Depth estimated at 32m Transducer Depth Estimated at 35m Sea State 1 Drift 0.5 knot Note significant platform roll with array deployed off port side.
21:10	Comex DERA HD_2CODE 1 Range 1189m
21:19	Comex DERA HD_8CODE 1 Range 1235m
21:30	Comex DERA QAM8 1 Range 1380m
21:42	Comex DERA QAM16 1 Range 1530m
21:50	Comex NEWCF 1Range 1681m
22:02	Comex TIMF 1 Range 1885m
22:11	Comex SIMON 1 Range 2056m
22:20	Comex DERA QPSK 2 Range 2170m
22:36	Comex DERA HD_2CODE 2 Range 2484m. Source reduced to _ o/p
22:45	Comex DERA HD_8CODE 2 Range 2688m. Source reduced to _ op
22:50	Echo sounder switched off due top possible in band interference.
22:54	Comex DERA QAM8 2 Range 2888m. Source increased to 7/8 op.
23:02	Comex DERA QAM16 2 Range 3100m. Source at _ op.
23:11	Comex NEWCF 2 Range 3400m. Source at _ op.
23:20	Comex TIMF 2 Range 3628m Source at _ o/p.
23:34	Comex SIMON 2 Range 4030m Source at _ op.
23:43	Comex DERA QAM16 3 Range 4324m Source at full op Biologics noted between 5-12kHz
23:52	Comex DERA QAM8 3 Range 4502m. Source at full op.
23:59	Comex DERA QPSK 3 Range 4677m. Source at full op. S/N becoming marginal 4-5dB.
00:06	Comex DERA HD2_CODE 3 Range 4960m. Source at full op.
00:16	Comex DERA HD8_CODE 3 Range 5185m. Source at full op
00:25	S/N marginal so recovering array and reconfiguring.
02:23	Array reconfigured as 2 split arrays as follows: Array channels 1-7, 1 at top 7 at bottom,of array 1, Array channels 8-14, 8 at top, 14 at bottom on array 2 but Jon says" *It will sort its self out anyway, that's the beauty of adaptive processing*". Arrays vertically

	separated by 4m. The bottom array is at 32m. Estimated Drift 0.8kts.
03:53	Comex DERA QPSK 4 Range 1337m. Source at full op.
04:02	Comex DERA HD_2 CODE 4 Range 1438. Source at full op.
04:08	Comex DERA HD_8 CODE 4 Range 1461. Source at full op.
04:14	Comex DERA QAM8 4 Range 1606. Source at full op.
04:19	Comex DERA QAM16 4 Range 1684m. Source at full op.
04:24	Comex NEWCF 4 Range 1778m.Source at full op.
04:29	Comex TIMF 4 Range 1878m. Source at full op.
04:34	Comex SIMON 4 Range 1892m. Source at full op.
04:38	Comex DERA QPSK 5 Range 1998m. Source at full op
04:44	Comex DERA HD_2CODE 5 Range 2065m. Source at _ op
04:49	Comex DERA HD_8CODE 5 Range 2156. Source at _ op
04:55	Comex DERA QAM8 5 Range 2265m. Source at full op.
05:00	Comex DERA QAM16 5 Range 2383. Source at full op.
05:04	Comex NEWCF 5 Range 2423m. Source at full op.
05:09	Comex TIMF 5 Range 2521m. Source at full op.
05:13	Comex SIMON 5 Range 2574. Source at full op.
05:19	Comex DERA HD_2CODE 6 Range 2701m.Source at _ op
05:22	Comex DERA HD_8CODE 6 Range 2783m .Source at _ op

RDS 2 DAY LOG
8 November 1998
(Times are local except where specified as UTC)

09:45	Ulrica VLA 08 deployed at Site A. Array 4, node 2, acoustic release ?. 12^0 21.2263 128^0 20.905 Programmed: 11:00 – 20:00, 8 Nov Burn wire set for Tuesday 17:00
10:45	Ulrica HLA 09 deployed Site A. Array 3, node K/L, acoustic release ?. Start Time: 10.25 Depth: 102 Start Pos: 12^0 21.866 128^0 20.908 Speed: 1.0 knots Fin Time 10.44 Depth: 102 Fin Pos: 12^0 21.874 128^0 21.060+ Speed: 1.0 knots Programmed: 11:00 – 20:00, 8 Nov Burn wire set for Tuesday 17:00
12:00	Intend to deploy DOPSS at: 12^0 19.3 128^0 20.5 SS start pos. for SRP detection run: 12^0 20.0 128^0 23.5
14:00	DOPPS body in water being towed at 2 kts DOPPS optical fibre broke during deployment near first pay-out point. DOPSS aborted,
14:18	COMEX PD5 NB1
14:23	FINEX PD5 NB1
14.24	COMEX PD5 AN1
14:29	FINEX PD5 AN1
14:30	COMEX PD5 NB2
14:35	FINEX PD5 NB2
14:36	COMEX PD5 BB2
14:41	FINEX PD5 BB2. End of PD5 series
14:50	SS proceeding 1.5 nm East to new station
15:31	COMEX PD6 AN1
15:36	FINEX PD6 AN1
15:37	COMEX PD6 NB1
15:37.5	Break in run PD6 NB1
15:38	Recommence PD6 NB1
15:43	FINEX PD6 NB1
15:46	COMEX PD6 NB2
15:51	FINEX PD6 NB2
15:52	COMEX PD6 BB2
15:57	FINEX PD6 BB2. End of PD6 series.
15:10	Start Light bulb calibrations on HLA 09 (double-shotted) NE Station: 17:10, 12^0 21.685 128^0 21.248; 17:15, 12^0 21.77 128^0 21.31. SE Station: 17:29, 12^0 22.032 128^0 21.221; 17:35, 12^0 22.112 128^0 21.271. SW Station: 17:49 12^0 22.015 128^0 20.867; 17:54 12^0 22.119 128^0 20.926.
17:55	Interrupt light bulb runs to clear the area in readiness for SRP detection

	transmissions at 7 mile station.
18:25	Bronco 4 miles distant from arrays. Engines off and drifting.
18:38	COMEX PD7 AN1
18:43	FINEX PD7 AN1
18:44	COMEX PD7 NB1
18:49	FINEX PD7 NB1
18:52	COMEX PD7 NB2
18:57	FINEX PD7 NB2
18:58	COMEX PD7 BB2
19:03	FINEX PD7 BB2. End of PD7 series.
19:50	SS is carrying out run at 11 knots from 7nm east of trials site directly over Ulite array. Run will last approximately 1 hour. This will be followed by personnel transfer.
20:09	SVP 05 deployed – Hooray! GPS position 12° 19.479'S, 128° 18.494'E Returning to HLA site to complete light bulb measurements
~ 21:08	NE position. Successful bulb implosion – no GPS position or time!
19:12:42	Second bulb at NE position (actually E) at: 12° 21.802'S, 128° 20.776'E
21:25:55	N position. First implosion at: 12° 21.549'S, 128° 21.009'E
21:30	Ulrica arrays have not yet been recording. Prepare to power up HLA 09.
21:38	Ulrica array HLA 09 turned on.
21:46	NW position. Repeat First implosion at: 12° 21.7259'S, 128° 20.7893'E
21:50	NW position. Repeat Second implosion at: 12° 21.7660'S, 128° 20.7742'E
22:01	*N position. Repeat First implosion at:* *12° 21.5827'S, 128° 21.0176'E* *Failure!! : Bulb did not go.*
22:06	N position. Repeat First implosion at: 12° 21.6277'S, 128° 20.9839'E
22:10	*N position. Repeat Second implosion at:* *12° 21.6593'S, 128° 20.9536'E* *Failure !! Bulb did not go*
22:18	N position. Repeat Second implosion at: 12° 21.5684'S, 128° 21.0254'E
22:29	Bulb breaking device has been repaired with some glue.
22:42	Centre Position First implosion at: 12° 21.8327'S, 128° 21.0080'E
22:47	Centre Position Second implosion at: 12° 21.8610'S, 128° 20.9811'E
22:53	Starting circle around HLA 09 5 knots at 500m radius.
23:12	Circle complete
23:18	Turn off HLA 09 code L
23:28	Transit to VLA site complete
23:29	VLA turned on

23:38	N Position First implosion at: 12^0 20.9639'S, 128^0 20.8387'E
23:41	N Position Second implosion at: 12^0 20.9630'S, 128^0 20.7937'E
23:50	W Position First implosion at: 12^0 21.2132'S, 128^0 20.5624'E
23:54	W Position Second implosion at: 12^0 21.2100'S, 128^0 20.5362'E
Monday 9 Nov 98 00:06	S Position First implosion at: 12^0 21.4856'S, 128^0 20.8504'E Failure!!
00:09	S Position First implosion at: 12^0 21.4648'S, 128^0 20.8406'E
00:14	S Position Second implosion at: 12^0 21.4551'S, 128^0 20.8091'E
00:26	E Position First implosion at: 12^0 21.2156'S, 128^0 21.1138'E Possible failure so will repeat (tiny hole in bulb)
00:30	E Position First implosion at: 12^0 21.1796'S, 128^0 21.0824'E
00:34	E Position Second implosion at: 12^0 21.1711'S, 128^0 21.0651'E
00:44	Turn Off VLA
15:00	Single OBS pod deployed off bow of MN. Coupling measurements made. Response of pod to SUS charges deployed from MNs rib at 16:45 (1km to starboard), 16:57 (2km astern), 16:59 (1km astern), 17:01(1km on starboard aft quarter). Further coupling measurements. Recovered pod at 08:00.

RDS 2 DAY LOG

9 November 1998

(Times are local except where specified as UTC)

0710	Recovered Octopus at Site A
0745	Ulrica HLA 09 pinged but buoy has not popped up (strong currents).
9:33	Realised wrong code being used on acoustic release, correct code used and surface buoy popped up.
10:09	Node on deck, covered in sediment.
11:45	Deploying SVP 1, Wind: none, force 0, sea state 0. SVP Deployed at 12° 19.014 S 18° 18.267 E
14:99	Ulrica HLA awaiting activation when advised of Active Environmental runs.
19:00	Deployed Octopus
20.37	Deploying SVP 7 at: 12^0 19.195’S, 128^0 17.571’E
15:30	Single OBS pod deployed off MN. Coupling measurements made. Recording of response of geophone pod to impact of concrete cylinder dropped from SS onto sea-bed 1km from MN at 17:00 and 17:18. Further coupling measurements. Single pod recovered at 20:30.

RDS 2 DAY LOG
10 November 1998
(Times are local except where specified as UTC)

09:00	Second DOPSS system in the water. Tow speed 2 knots. Tube has been released.
09:25	No signal on deck. Tube being recovered.
10:30	VLA turned on. PC to stand off 2 miles and shut down
11:07	Suss charges dropped by SS
11:10	2 charges 30 seconds apart to be dropped.
11:20	Charges detonated. Jess confirms that **5 charges have been detonated** to this point. Confirmation for all of these charges was not given.
11:36	SS shutting down to drop charges 1km from VLA.
13:45	Charge and SRP pulses for Active Environmental runs completed.
14:30	Ulrica VLA turned off and recovered
15:30	Start 15 hours of Acomms runs
9:30	OBS recovery. Buoy lifted onto MN deck. First terrapin recovered was 10th, followed by 9th and 11th etc. Array appeared to have been dragged by anchor of MN immediately after deployment. Riser rope holding pot and weight began to fray on the edge of the deck and was cut. Kevlar cable had been sheared before 14th and before the 1st. The two anchor weights, the pot, and the 1st and 14th were not recovered. Recovery completed at 11:30 with MN at 12° 19.000S 128° 17.615E.

RDS 2 DAY LOG
11 November 1998
(Times are local except where specified as UTC)

	Recovered Octopus

2.4 Scientific log from Dr Bruce Williams (US), onboard TSMV Pacific Conquest

10-31:

805 Started the octopus #2 for 64 sec collection at 120 sec rep rate
190 files will be collected.
Battery at 13.33volts.
0817: Array hits the water. At 12 15.30S 128 16.03E
water depth = 106m
Ship pulls away immediately, but is requested to come back to site
0825: slant range from the acoustic release shows about 300m
0830: PC heads away at 140 True
0850: RAIN
0912: 12 19.9S 128 18.8E
0915: rain stopped
wind speed 20kn from 150T Sea State 3-4
1102: winds 15 kts seas building a bit
11:30-14:30 winds 10-12kn from 140T few white caps
1500: noticed that the PC was near the array. Requested to go back down to 12-20
128-20 need to check ship log for positions when looking at data.
1625: going back to array site. Winds now 8-10 @ 110T

1700: recovered array. Analysis showed that phones 7,8,11 had small amounts of water in them.

11-3

1251: deployed array at 12 20.01 S
128 21.025E
recording started at 12:30 local 64sec every 150s for 120 files.
1540: started passive detection source?
The above was changed. Will enter as new info received..

1700: recovered array w/o incident.

11-4: Data of 11-3
All phones were working. Data shows the
NB2 strong lines. Also in the data is a 600 Hz broad energy, believed due to exploration activity. A line at 96.3Hz with 2nd,3rd,4th and 5th harmonics

11-5 deployed array at 10:57 local 12 10.708S water depth 104m
128 15.016E
placement 200m due west of Ulrica array centre.
ship drifting toward 330T
1115: ship heading 125T for at least 1 hr

recording starting at 1100 local (group0 recording between 1105:00 and 1106:04)
recording 64 s every 300s for 220 files
timed release set for 0925 11-6
(beamformed data shows arm 1 pointing to 230T 11-6-rbw)

1125: winds up to 46kn from the SE
see ship's log for details

11-6 back on station at 0500. Recovered array – used rubber duckie about 15 min of hauling line up. Transfer to ship w/o incident. Sea state 3.

All files recorded. Battery voltage at 0700 12.3v.

11-6,7 processing the data. Beamforms show the storm coming and going. The spectra is particularly interesting. It establishes a spectral shape and level vs wind speed to be used in model/simulation for wind noise.

11-8: deployed array 10:57 which is midway between UK VLA and HLA. Water depth=103m

VLA:	deployed 09:43	(finished)	12 21.317S	128 20.788E
HLA:	10:40	canister	21.866	20.908
Octopuss	10:57		21.557	20.750

Collection parameters: 64s every 150s 100 files starting at 12:30

Flat calm seas. Warning weather approaching from N/E
11-9 recovered array at 0700. Data analysis shows strong biologics broadband in the 700 and above (greater than the 1200Hz cutoff filter).

Deployed array at 19:00hrs 12 11.56S 128 21.311E seas calm at sea state ~ 1. Water depth 103m.
11-10 12:20 rain squall.
11-11 0800 recovered arry. Data recorded from 8pm thru 1am (5 hrs)

2.5 Excerpts from the log of Mark Stevenson, onboard FRV Southern Surveyor

(MS mainly on board Southern Surveyor)

All times local unless indicated.

30 OCTOBER 98

MN moored @ 1330L: 12°20'S 128° 18.85'E
Setting current 1 kn of North seems to prevail. Wind SE at 10 kn during afternoon.

17:00 Begin 1st attempt at ULITE deployment. Radio link failed. Aborted at 18:15.

Slack water periods occur at H, L tide

Sat	31 Oct	0200	0900	1500	2100
Sun	1 Nov	0300	1000	1600	2200
Mon	2 Nov	0413	1048	1650	2300
Tues	3 Nov	0500	1130	1740	2346
Wed	4 Nov	0536	1212	1830	FM
Thurs	5 Nov	0030	0612	1300	1912

31 OCTOBER 1998

Winds choppy 9am-10am, calm at 1500-1600

2100 PC radar is broken
New (planned) Ulite origin is 12°20'S 128°19.5E. This is "waypoint 997" in PLGR.

1 NOVEMBER 1998

0750 wind is southerly at 26 kn. Ulite deployment impossible in this wind.

0800 wind 28 kn

R.G hooked up 1031 12°19.974 128°19.503

1036 error lights on radio. Gr array looks good, R array no reset.

12°19.877 128° 19.545 Node splash.

Blue buoy anchor 12°19.621 128°19.264

Blue buoy anchor float 12°19.614 128°19.223

Buoy location at 11:20 are:
R anchor line for buoy 12°19.633 128°19.473
Red buoy anchor splash at 12°19.521 128°19.538
Red buoy anchor float splash at 12°19.486 128°19.470

SS pass over Ulite:
1311 SS 12°19.960 128°19.490
1312 L turn 045°, small boat passes over array
1319 turning inbound
1321 steady on heading 211°
1327 CPA N to S run 5 kn
1330 FINEX. SS turns to port to begin P-3 exercise to the N.

1912L The last 6 elements on the Blue array are getting trashed (clipped) by seafloor dragging sensors 25-32 (blue). Is the RF buoy dragging? Is it related to current?
1935L TX (SRP) on, 70, 95 and 145 Hz.
1937 Ulite recording begins
1945 SS turns left from 185° to 060°T. Gentle turn. Speed 3 kn, source 50 m depth.
2002 Source tx off Ship at 12°21.09 128°18.75. Short 1.5 nm S of array.

Yellow buoy: 12°19.678 128°19.484

3 NOVEMBER 1998

0600 PC and MN drifted 5 nm S of experiment site during the night
0730 Light bulb event COMEX.

"Sequence 02", source depth 50 m, 70 and 110 Hz, Northbound run.
2112 Ulite recording.
11:40:43Z COMEX @ 12°19.63' 128°21.03'
2239L decrease speed to 2 kn towing source.

MFP waypoints:

	WPT	Lat 12°S	Long 128°E
01	Sierra	17 30	21.15
02	Tango	19.05	20.15
03	Uniform	19.90	20.60
04	Victor	19.90	22.60
05	Xray	15.65	22.20
06	Yankee	19.90	24.60

4 NOVEMBER 1998

MFP run at 4 kn. Source depth 50 m. Begin at WPT S. Tones 80, 110 Hz.
1047L Begin recording for S to T track

00.46:40Z Ulite recording for T to U track
01:02:44Z Stop recording (F/W rebooted)
01:06:00Z Turning @ U to 95°
01:16:45Z Recording starts for U to V track
01:38:56Z Stop recording
At the very end of this run, line-of-sight was lost to radio. Lots of errors on RF link. Radio comms to van breaking up. Relay thru Kiwi bridge.
01:45:10Z recording starts for V to S track
02:10:30Z end recording
02:25:01Z Begin recording S to X track
02:49:11Z end recording

02:58:44Z begin recording X to Y track
03:28:16Z end recording
03:33:30Z begin recording 2nd half of X to Y track
03:57:37Z end recording
04:04:59Z begin recording Y to U track
04:26:24Z end recording.
04:32:33Z begin 2nd half of Y to U track
05:02:51Z end of recording.

Night: 5 min Ulite recording to compare SS in quiet state (at anchor) with MFP run ship noise.

5 NOVEMBER 1998

Ulite optical pwr lost. No photons running up riser cable to buoy. –55 dBm measured to buoy (i.e., no signal). Winds today 35-40 kn. Ulite buoy miraculously survived.

6 NOVEMBER 1998

1315L Slack water was observed from MN using a weighted float. At 1330 the tide (current) was carrying the ?? night SOUTH (tending to SSE).

1400L current observed SE at about 1/4 kt from floating can. Wind is from E at 10 kn.
1500L drifter measurement observed current 1 kn toward 140°T. Wind from E, so the current is opposing the wind. Observed curl of vector(V) appears to be CCW, ie. NW to S to SE.
1600 current toward 135°T about 2 kn raging! So the current is out of the NW toward SE.
1700 current toward 135°T about 2 kn.

Outboard motors MN Zodiak: on 1630
off 1640
on 1655
off 1658 (all times local)

1730L current observation using drifter: 135° @ 2kn, same as 1600 and 1700.
1845 drift 165° at 0.5 kn.

7 NOVEMBER 1998

Replaced faulty riser cable blue array and node.
Conducted light bulb AEL stations 1-15, skipping 14 and 3.

DRIFT01 event:

Position of SS at start of drift event: 12°18.7S 128°19.1'E
Position of MN:12°19.3 128°18.5
Position of PC: 12°18.65 128°17.82, drift 0.5 kn @ 316°

Ulite centroid bears 154°T for 1 nm at start of event.
PC bears 275° @1.15 nm
Current is toward NW @ 0.5 kn
PC, auxiliary engine only, not operating main propulsion engine.

2210 Begin recording on Ulite, "DRIFT01".
1244 Source Tx on. XBT. Source level 148 dB.

2317 SS 12°18.22 128°18.29
2330L End of drifting source tow.
1400Z FINEX DRIFT01 NB5.
SS position at FINEX: 12°18.05 128°21.26
1405Z ULITE recording stops

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0449Z Event PD5 NB1 COMEX.
0454Z FINEX
SS 12°19.747 128°22.533

051140Z	PD5/BB2
060930Z	PD6/NB1 COMEX (recommence)
061430Z	FINEX
061725Z	COMEX PD6/NB2
062229Z	FINEX

SS 12°20.205, 128°25.524 (PD6)

062315Z	COMEX PD6/BB2
062815Z	FINEX, end serial PD6
0630Z	Stop recording on Ulite.

Night CPA1 event This is also called TOW06 in RDS2 logbook (Ian Cox's).

80 & 110 Hz, SRP 50 m. Only 2 tones because of ship noise.

113550Z	COMEX

SS at start 12°20.960 128°17.220, speed 4 kn.

1150Z	Source temporarily stops transmitting.
1152Z	Source back on line
1217Z	(2147L) SS CPA Ulite 1nm range 4 kn, eastbound.

PC is imploding light bulbs tonight, near source (?) at 2200L or 1230Z, SE of Ulite array. Look for contamination from light bulb implosions.

1238Z	During the past 30 min, the ship's (SS) speed was approximately 3.4 kn.
1235Z	Speed was increased to 4 kn. We should see a decrease in the tow fish depth as the fish kites upward.
1250Z	Speed decreased to 3.5 kn.

1315Z	End of CPA1. SS 12°21. 128°22.8

(Same night but earlier??)

Event PD07

Type	COMEX	FINEX
AN1	090952	091455
NB1	091540	092040
NB2	092315	092848
BB2	092940	093440

High-speed run over Ulite array

0955Z Ulite recording begins
SS 12°19.970 128°26.320, heading West, speed 10 kn, inbound from 6 nm E of Ulite.
1004Z PC heading 010°T 8 kn.
1018Z Ulite recording stopped to start new recording session.
1020Z Recommence recording.
1051Z SS CPA green array to S of centroid.

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0335Z ABES deployed. Location 12°19.391 128°18.877
0500Z CTD 04 conducted from MN 600 m from ABES site. Current was almost nil at this time.
0800Z The current was toward 110° at almost 0.5 kn as predicted by the Kiwi navigator (observation by "drifting CD current meter")

Night: SS triangular runs over Ulite array (no SRP)
BLUE1 to GR1, Ulite on port side.

1030Z Begin recording Ulite.
Small loop:
2100L at point BLUE01 on westerly heading.
Pause in exercise to conduct personnel transfers.
1136Z end of inner triangle.

Larger loop:
1130Z begin leg BLUE02 to GREEN02. Ulite is recording.
1207Z at GR02. Ulite recording stops. Heading 240° RH turn to new course 030°T.
1213Z Ulite recording begins leg GR02 to RED02.
1227Z Arrive RED02
1232Z Start leg RED02 to BLUE02.
1245Z FINEX all triangles.

2.6 Excerpts from the log of the US ULITE team, onboard HMNZS Manawanui

ULITE RDS-2 Experiment Log (30 October thru 11 November) (V. McDonald)

note 1: All time and dates are in GMT
note 2: Calibration coefficients used for all three arrays— low gain: -162, med gain: -146, high gain: -130.6 dBV// uPa. Calibrations coefficients for each sensor of each of the arrays deployed is available upon request. Call Keyko McDonald @ (619) 553-3094 USA, or email @ vmcdonal@spawar.navy.mil.
note 3: Feel free to call Keyko McDonald for any questions concerning the ULITE logs or the data.
note 4: Computer file naming convention: 305_017.r, is the 17th recording on julian day #305
note 5: The recording computer's clock was synchronized with GPS time approximately once per day. We noticed that the computer clock would gain a couple of seconds on the GPS time over a 24 hour period.

Abbreviations. Southern Surveyor (Love Boat): ss, Pacific Conquest (Gone Fishing): pc, Manawanui (THE ROCK). the rock or MN, Sonar Research Projector: SRP.

Array Deployment
- 11/1/98 23:23 Z; array is deployed
    - node location S 12 19.877', E 128 19.545'
    - buoy location S 12 19.635', E 128 18.473'
    - 305_01.r through 305_51 are recordings made during deployment of the ULITE arrays.

SS tracks over the array
- 11/1/98 03:41 Z, 305_52.r 30 minute recording begins
- 11/1/98 03:46 Z, ss passes over array origin
- 11/1/98 03:50 Z, ss inbound, heading NE toward array
- 11/1/98 03:52, Z, ss heading 205 degrees, range to array center 1/2 mile
- 11/1/98 03:57, Z, ss driving north to south past RF buoy between Red and Green arrays
- 11/1/98 03:59 Z, ss CPA Green array, driving down the length
- 11/1/98 04:01 Z, 305_52.r recording stops

SUS charges
- 11/1/98 05:07 Z, 305_53 r recording begins
- 11/1/98 05:41 Z, 305_53.r recording ends

Ambient noise recording
- 11/1/98 07:26 Z, 305_055.r recording begins

Checking all array sensors
- 11/1/98 08:31 Z, 305_056 recording begins
    - channels 26 through 32 on the Blue array are railed; fiber optic riser cable may be dragging the end of the blue array causing this problem
- 11/1/98 08:39 Z, 305_60.r recording begins
- 11/1/98 09:59 Z, 305_060 and _062 recordings are to be disregarded

Source Tows
- 11/1/98 10:11 Z, 305_063.r recording begins
    - source depth 50 meters
    - source frequencies: 70, 95 and 145 Hz
    - source projection levels: 142.5, 152.5, and 151.5 dB respectively

- 11/1/98 10:30:38 Z, source being towed inbound at 035 degrees 2 miles from array origin
- 11/1/98 10:36:49 Z, source is pulled from the water
- 11/1/98 ~ 10:37 Z, 305_063.r recording ends

Ambient noise recording
- 11/1/98 11:01:48 Z, 305_065.r recording begins (do not have an 'end time')
- 11/1/98 11:04:25 Z, 305_066.r recording begins (do not have an 'end time')
- 11/1/98 ? Z, 305_064.r recording is to be disregarded
- 11/1/98 11:56:36 Z, 305_068.r recording begins
    - do not see railing on the higher numbered channels of the Blue array

Checking all array sensors
- 11/1/98 ? Z, 305_069.r recording should be disregarded
- 11/1/98 21:25:34 Z, 305_070.r recording begins (do not have an 'end time')
    - channels 7 through 32 are railed on the Blue array
- 11/1/98 23:20:43 Z, 305_071.r recording begins
    - channels 29 through 32 are railed

Lightbulb AEL
- 11/2/98

Station	GPS Positions	Implosion time	Filename	
10	12 20.003 128 19.636	01:00:12	306_001.r	
10	12 20.015 128 19.636	01:07:13	306_003.r	
9	12 19.932 128 19.630	01:32:02	306_004.r	
9	12 19.940 128 19.626	01:36:33	306_005.r	
8	12 19.855 128 19.643	01:40:53	306_006.r	
8	12 19.869 128 19.629	01:45:33	306_007.r	
7	12 19.828 128 19.714	02:01:45	306_010.r	
6	12 19.787 128 19.774	02:05:54	306_011.r	
6	12 19.798 128 19.760	02:11:02	306_012.r	
3	12 19.881 128 19.432	03:40:11	306_013.r	
3	12 19.918 128 19.417	04:27:05	306_015.r	*low confidence on GPS pos.

Ambient Noise
- 11/2/98 05:50:00 Z, 306_017.r recording begins (do not have an 'end time')
    - all channels on the Blue array look good
- 11/2/98 07:50:51 Z, 306_018.r recording begins (do not have an 'end time')
- 11/2/98 11:37:00 Z, 306_019.r recording begins (do not have an 'end time')

Surface ship AEL
- 11/2/98 11:44:40 Z, 306_020.r recording begins; LEG 1
- 11/2/98 12:03:35 Z, 306_020.r recording ends

- 11/2/98 12:12:38 Z, 306_021.r recording begins; LEG 2
- 11/2/98 12:25:38 Z, 306_021.r recording ends

- 11/2/98 12:35:10 Z, 306_022.r recording begins; LEG 3
- 11/2/98 12:44:03 Z, 306_022.r recording ends

- 11/2/98 12:49:56 Z, 306_024.r recording begins; LEG 4
- 11/2/98 13:03:07 Z, 306_024.r recording ends

- 11/2/98 13:08:52 Z, 306_025.r recording begins, LEG 5
- 11/2/98 13:20:19 Z, 306_025.r recording ends

- 11/2/98 13:25:20 Z, 306_028.r recording begins; LEG 6
- 11/2/98 13:36:50 Z, 306_028.r recording ends

Ambient noise recording

- 11/3/98 03:16:25 Z, 307_003.r recording begins (do not have an 'end time')

Lightbulb AEL

- 11/3/98

Station	GPS Position (S, E)	Time of Implosion	Filename
1	12 19.816 128 19.306	03:22:02	307_004.r
1	12 19.813 128 19.304	03:28·14	307_005.r
2	12 19.851 128 19.362	03:34.02	307_006.r
2	12 19.861 128 19.359	03:38:08	307_007.r
3	12 19.889 128 19 423	03:42:41	307_008.r
4	12 19.882 128 19 428	03:46:50	307_009.r
4	12 19.876 128 19.416	03:53:59	307_010.r
5	12 20.034 128 19 500	03:59:18	307_011.r
11	12 19.492 128 19.691	04:07:28	307_012.r
11	12 19.499 128 19.683	04·16:20	307_013.r
12	12 19.524 128 19.627	04:20:55	307_014.r
13	12 19.550 128 19.566	04.25:50	307_015.r
14	12 19.527 128 19.506	04:30:46	307_016.r
15	12 19.497 128 19.438	04:40:17	307_017.r

Source tows (PD1)

- 11/3/98 06:12Z file 307_018.r
    - all ships quiet from frame 0 to 62353
    - 0614Z Sources deployed into water.
    - 062330Z NB2 tones at 80, 95, 125, 160 ,195, 245 Hz Source depth 50 m.
    - 062830Z Finex NB2
    - 062935Z Comex BB2
        - 80 to 800 Hz pink noise. SL ?
    - 063455Z Finex BB2
    - 063703Z Comex NB1
        - tones 63, 193, 197 Hz. SL ?
    - 064224Z Finex NB1

Source Tows

Starting location 12 20' S , 128 21' E
- Tone 1 70 Hz, 154 dB SL
- Tone 2 110 Hz, 150 dB SL
- Speed of source 3 kt.

- 11/3/98 114055Z file 307_019.r
  120100Z finex file recording.
- 11/3/98 121740Z file 307_022.r
  1203722Z finex file recording

- Note file 307_024.r is a bad recording.

Matched Field Detection and Tracking

Frequencies 80, 110 Hz both at 155 dB SL.

- 11/4/98 001640Z file 308_001.r, run S to T.
  - 004000Z finex recording.
- 11/4/98 004636Z file 308_002.r, bad file.
- 11/4/98 004810Z file 308_003.r, run T to U.
  - 010353Z finex recording
- 11/4/98 011618Z file 308_004.r, run U to V.
  - 003900Z finex recording.
- Note that file 308_005.r is bad.
- 11/4/98 015035Z file 308_006.r, run V to S.
  - 021053Z finex recording.
- Note file 308_007.r is a bad file.
- 11/4/98 022727Z file 308_008.r, run S to X.
  - 025207Z finex recording.
- Note file 308_009.r is bad.
- 11/4/98 025856Z file 308_010.r, run X to Y, first part.
  - 032817Z finex
- Note file 308_011.R is a bad file
- 11/4/98 033359Z file 308_012.r, run X to Y, second part.
  - 035743Z finex recording.
- 11/4/98 040517Z file 308_013.r, run Y to U, part 1.
  - 042630Z finex recording.
- 11/4/98 043340Z file 308_015.r, run Y to U, part 2.
  - 050242Z finex.

Ambient Noise (Ian Cox requested)

- 11/4/98 1009Z file 308_017.r

Light Bulb AEL

*11/7/98

Station	GPS Position	Implosion	Filename
15	12 19.504 128 19.603	07:31:24	311_071.r
15	12 19.512 128 19.643	07:35:18	311_072.r
14	12 19.352 128 19.514	07:41:34	311_073.r
12	12 19.523 128 19.643	07:46:49	311_074.r
11	12 19.511 128 19.315	07:52:09	311_075.r
10	12 20.020 128 19.659	07:57:40	311_076.r
9	12 19.968 128 19.643	08:02:45	311_077.r
8	12 19.899 128 19.688	08:08:17	311_078.r
7	12 19.853 128 19.716	08:11:41	311_079.r
6	12 19.834 128 19.768	08:15:05	311_080.r
6	12 19.827 128 19.765	08:18:18	311_081.r
5	12 20.038 128 19.512	08:26:xx	311_082.r
4	12 19.876 128 19.416	08:31:14	311_083.r
2	12 19.850 128 19.340	08:35:54	311_084.r
1	12 19.817 128 19.301	08:39:32	311_085.r

Array Repair and Redeployment

- 11/7/98 time approx,. 1330Z files 311_001.r through 311_060.r test files during deployment.

Ambient Noise

- 11/7/98 ~0700Z files 311_061 through 311_070.r.

SS Source Tow while drifting

- 11/7/98 Notes: frequencies 95, 110, 125, 143, 160, 173, 195 Hz. Nominal SL 148 dB.
  - SS start position 12 18.7', 128 19.1'
  - MN start 12 19.3', 128 18.5'
- 11/7/98 1223Z file 311_087.r
  - 1223Z SS pulling up anchor.
  - 1227Z SS begins drift.
  - 1230Z PC informs MN that AUX engines used.
- Note file 311_088.r is bad.
- 11/7/98 1242Z file 311_089.r
  - 1244Z NB5 comex.
  - 1315Z finex
- 11/7/98 132134Z file 311_090.r, 1/2 hour recording started.
  - 1351Z finex.

Note 1400Z source turned off on SS.

- 11/7/98 1402Z file 311_093.r, ambient noise recording.
  - 1407Z finex.

Array Check Out

- 11/8/98 0002Z file 312_001.r
- 11/8/98 0027Z file 312_002.r
  - array looks good.
- 11/8/98 0328Z file 312_003.r

SS Drifting Tow

Notes: Beginning Location SS 12 19.747, 128 22.533

- 11/8/98 045216Z file 312_004.r, PD5/NB1
  - 045400Z finex NB1
  - 0455Z comex AN1
  - 0500Z finex AN1
  - 0500Z comex NB2.
  - 050520Z finex NB2
  - 050640Z comex BB2.
  - 051140Z finex BB2
  - 0514Z finex recording.

SS Drifting Tow

Notes: Beginning location SS 12 20.205, 128 25.524

- 11/8/98 060331Z file 312_006.r, PD6.
  - 060930Z comex NB1.
  - 061430Z finex NB1
  - 061725Z comex NB2
  - 062225Z finex NB2
  - 062315Z comex BB2
  - 062815Z finex BB2.
  - 063000Z recording stops.

PD7 Series Begins

- 11/8/98 091305Z file 312_007.r
  - 093530Z finex
- 11/8/98 095520Z file 312_008 r
  - SS high speed run over array,
  - 1005Z SS spd 8 kt.

- 101130Z SS in bound at 11kts, 4 nm range east of ULITE origin.
- 11/8/98 102100Z file 312_009.r
  - continuing high speed run
  - 1027Z SS 11kts, 1 nm from ULITE array inbound.
  - SS will pass directly over Green Leg, leaving Blue and Red to Stbd.
  - 103253Z SS passes over Green array
  - 103336Z cpa array centre.
  - 104041Z finex recording.
- 11/8/98 113600Z file 312_010.r
  - SS west to east run, 1 nm from ULITE origin.
  - 80, 110 Hz tones at 154 dB from SRP.
  - 1150Z tones off line for unknown amount of time.
  - 120600Z recording ended.
- 11/8/98 121710Z file 312_012.r
  - 1220Z 1 nm cpa SS from ULITE origin.
  - 1230Z PC is imploding light bulbs.

Surface Ship AEL

- 11/8/98 1029Z file 313_015.r, Blue1 to Green1 leg.
  - 1033Z radar from SS may have caused errors in recording.
  - 1036Z SS passing ULITE RF buoy port side.
  - 1037Z ULITE RF buoy astern.
  - 1047Z recording stopped.

- 11/8/98 1053Z file 313_016.r, Green 1 to Red 1 leg.
  - 1102Z recording stops.
  - periodic errors on Radio receiver on signal bridge of MN.
- 11/8/98 1111Z file 313_017.r, Green 1 to Red 1 leg (still)
  - ACQUISITION NEVER STARTED, FILE DOES NOT EXIST.
- 11/8/98 115100Z file 313_018.r, Blue02 to Green02, leg.
  - 1207Z recording stopped.
- 11/8/98 1213Z file 313_01?,
  - 1227Z recording ends.
- 11/8/98 1233Z file 313_021.r
  - Deluge of rain!
  - 1245Z recording ends.

3. GPS NAVIGATION RECORDS

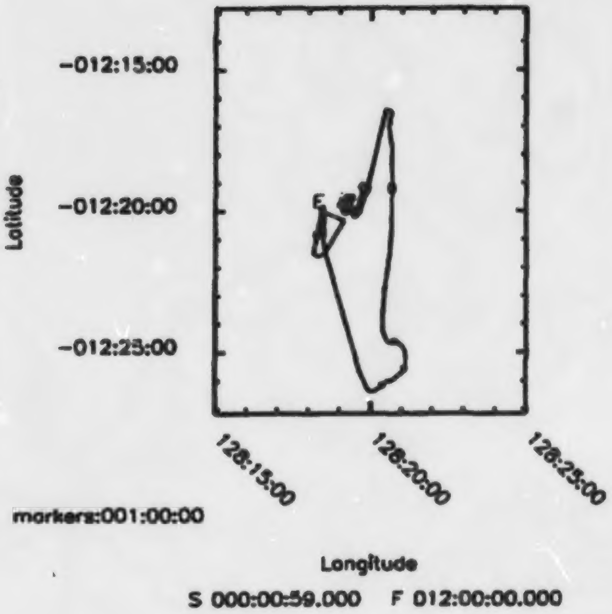
This section provides track plots for 12-hour periods throughout the trial and lists of interpolated positions at 10-minute intervals. On the track figures, the 'S' symbol denotes the beginning of the track and the 'F' symbol denotes the end of the track. The start and end times of the tracks are listed beneath each figure. Markers on the tracks indicate the passage of time and correspond approximately to the interval listed beside the marker comment beneath each plot. [Due to a software error found late in the review process of this document, the markers usually appear in clusters of 3 closely located markers. The first marker of each cluster is the correct one.]

Section 3.1 gives the above figures and tables for Southern Surveyor, while Section 3.2 covers Pacific Conquest. Manawanui is not included, as the ship was anchored for most of the trial.

The original navigational data are available on the Environmental CD for RDS-2. The files from Southern Surveyor include the positional information for Southern Surveyor only, while the files from Pacific Conquest include positional information for all three vessels.

3.1 Southern Surveyor

1 Nov 1998



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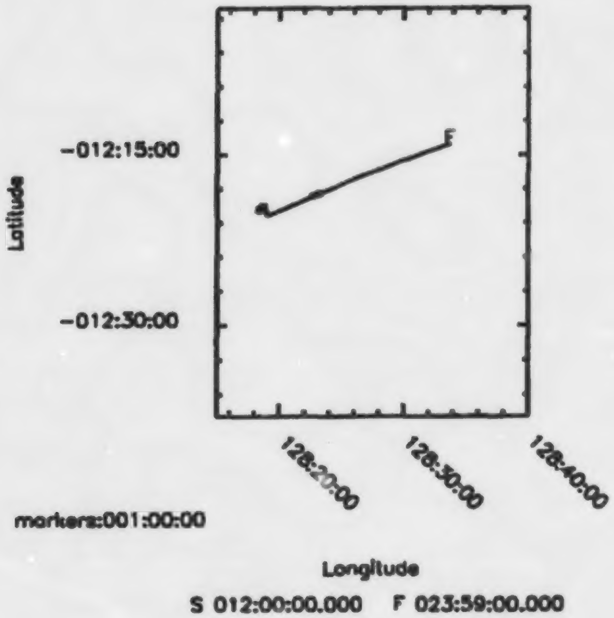
Longitude
S 000:00:59.000 F 012:00:00.000



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Longitude
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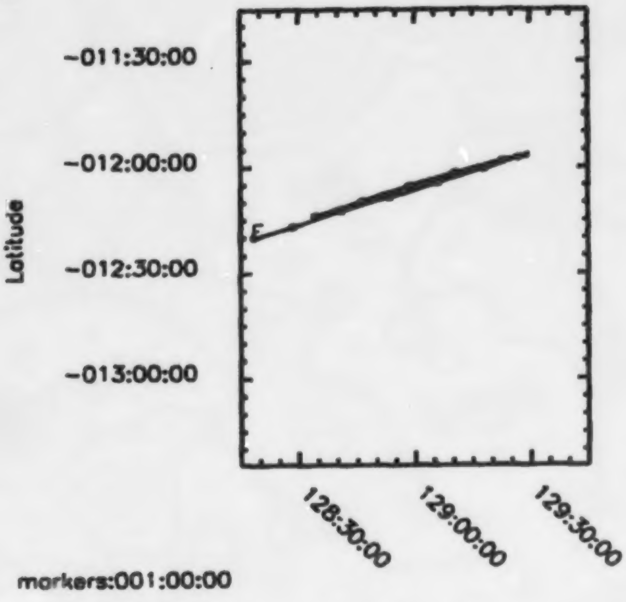
2 Nov 1998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Longitude
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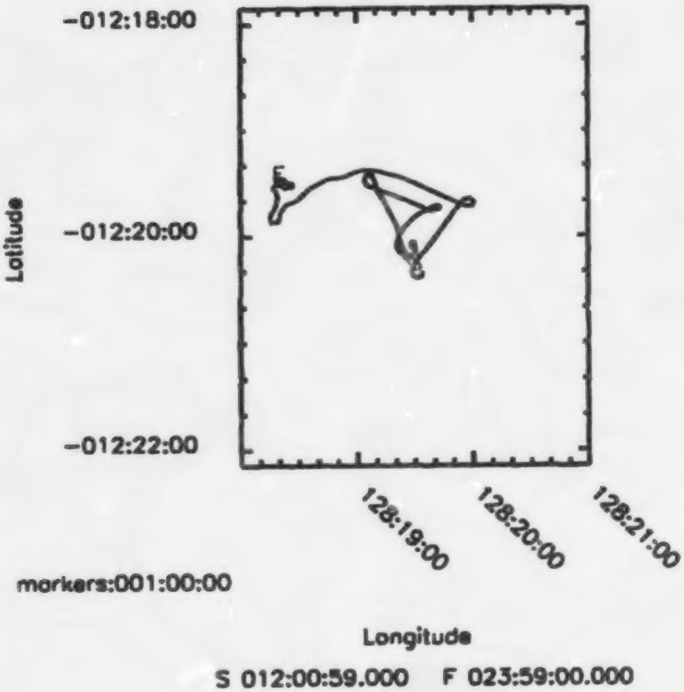
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S
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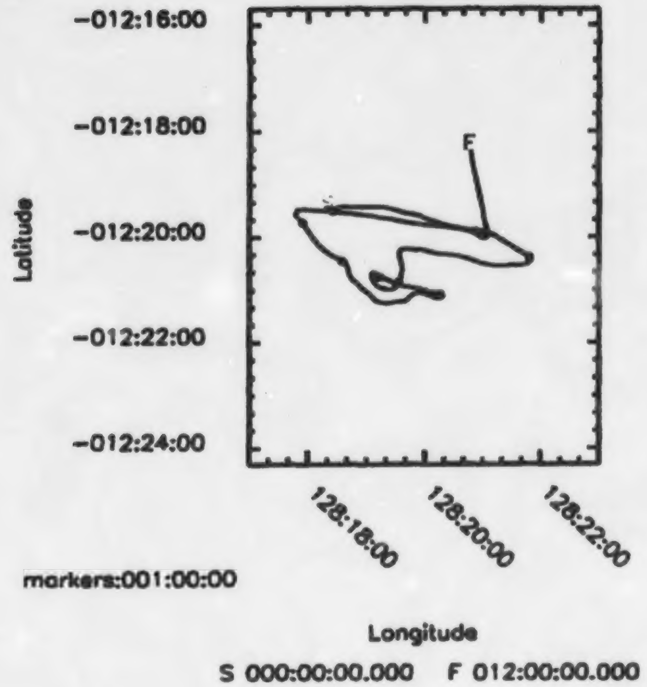
3 Nov 1998



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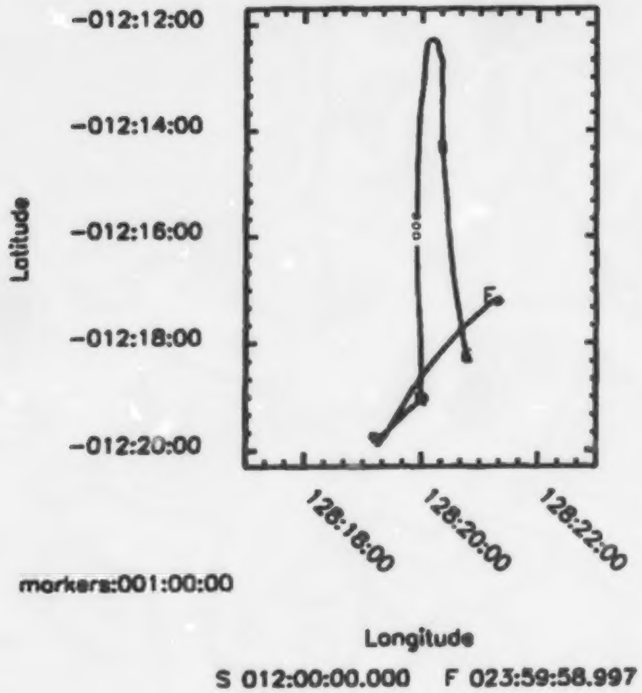
markers:001:00:00
Longitude
S 000:00:00.000 F 012:00:00.000



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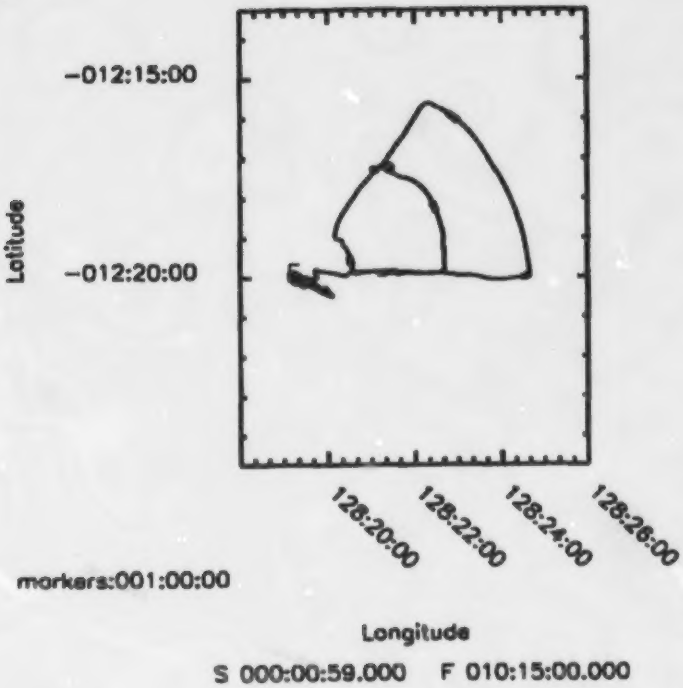
4 Nov 1998



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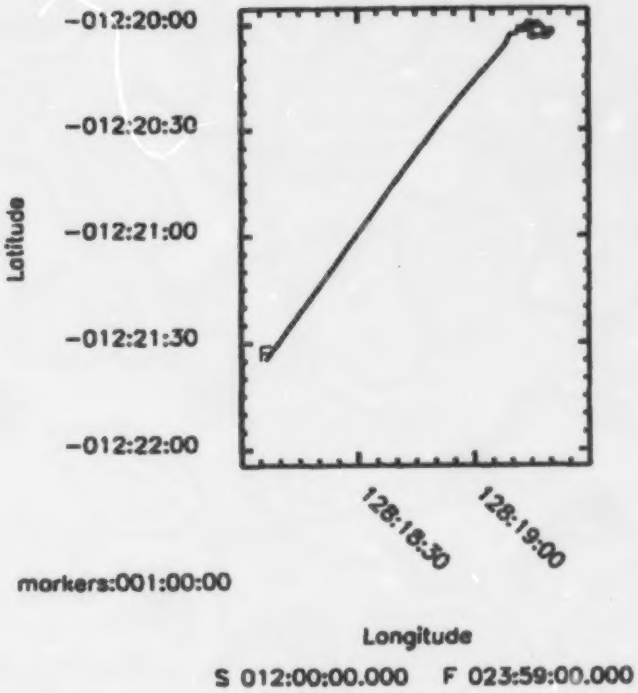

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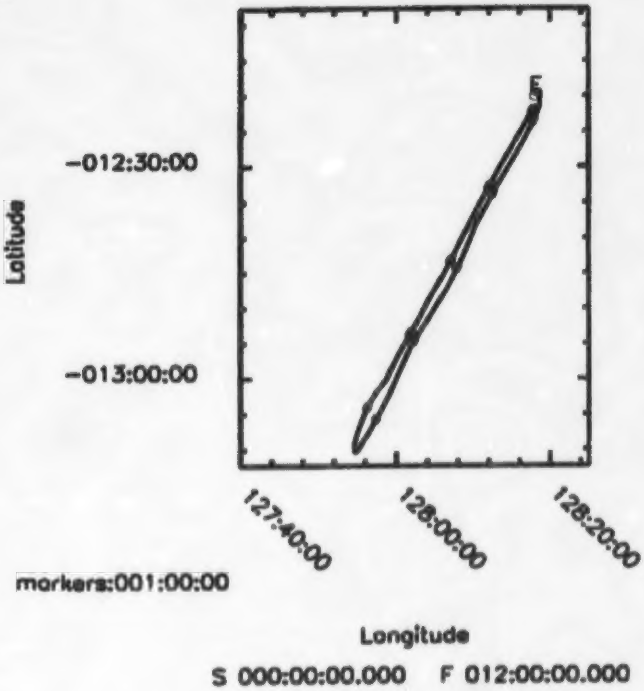
Longitude
S 012:00:00.000 F 023:59:00.000

5 Nov 1998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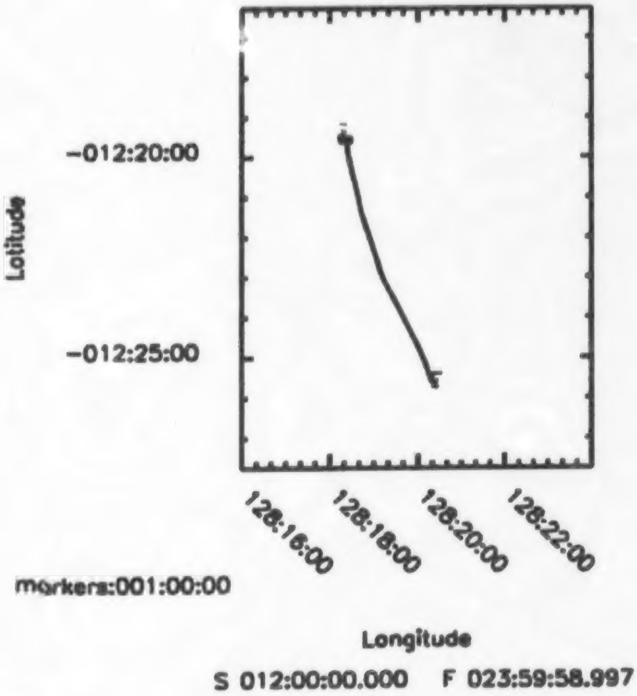
S
F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Longitude
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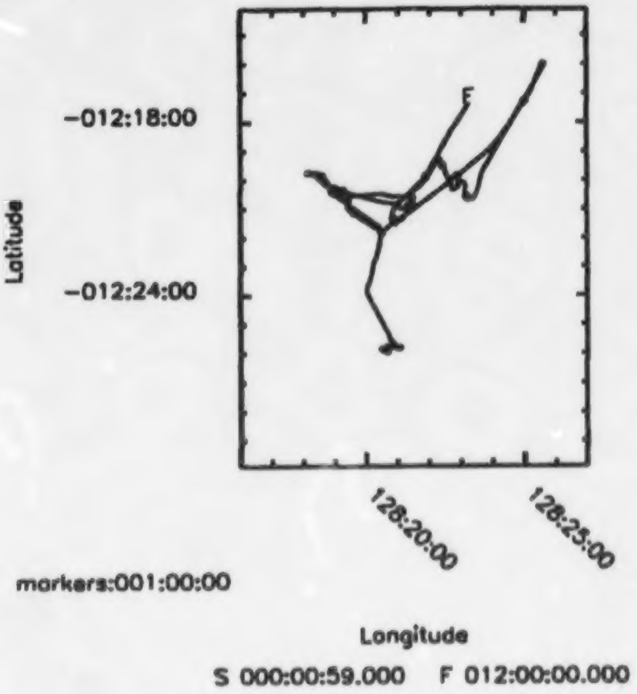
S
F

6 Nov 1998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Latitude
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markers:001:00:00
Longitude
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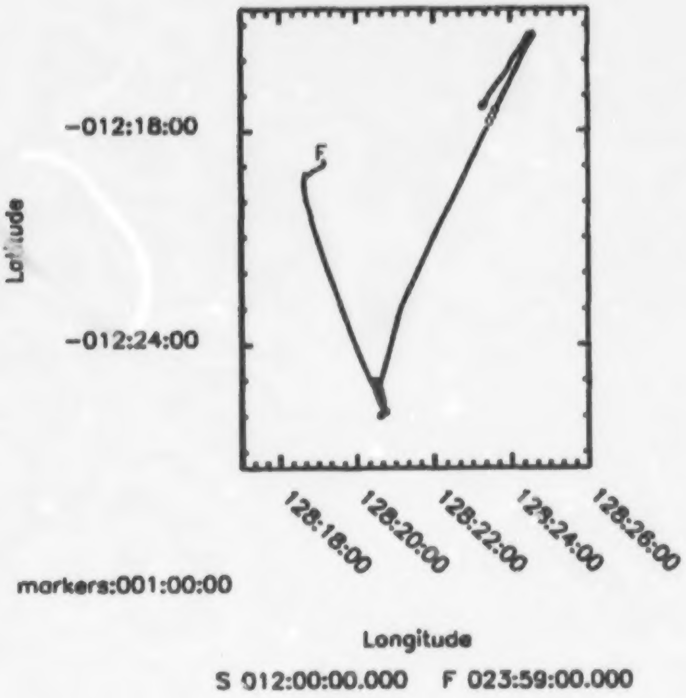
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Latitude
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markers:001:00:00
Longitude
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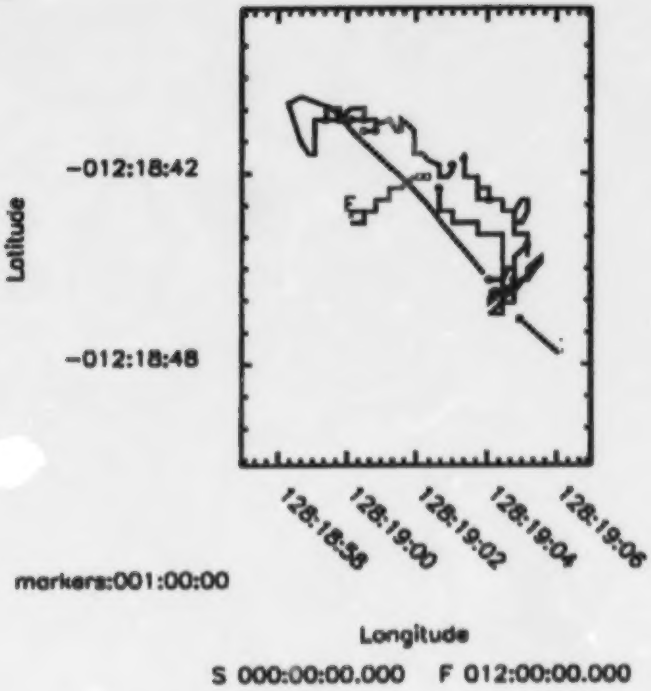
7 Nov 1998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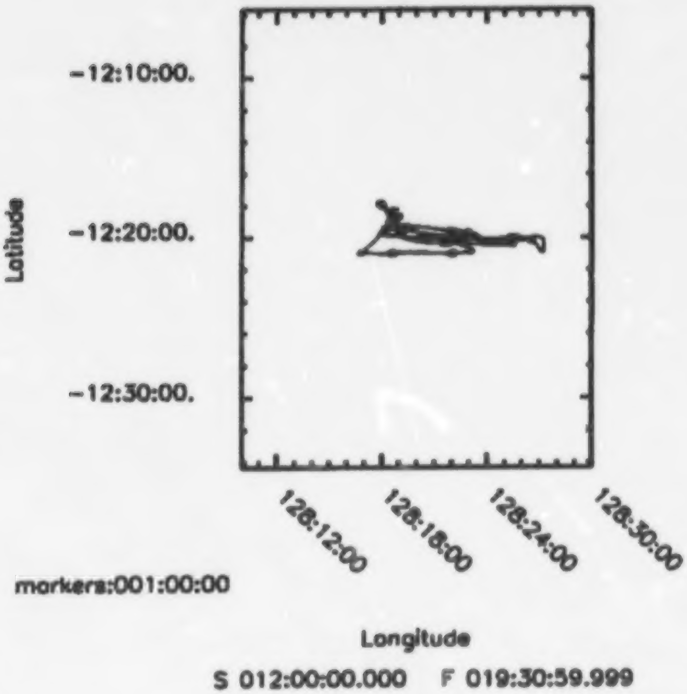
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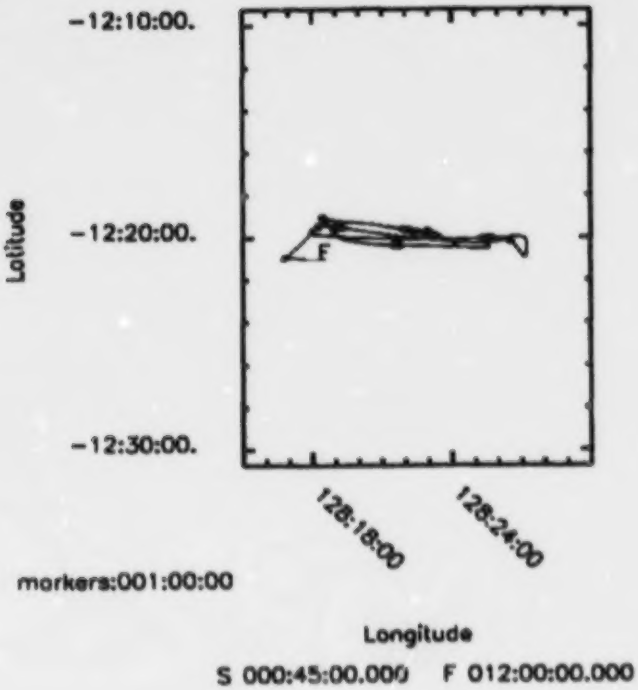
8 Nov 1998



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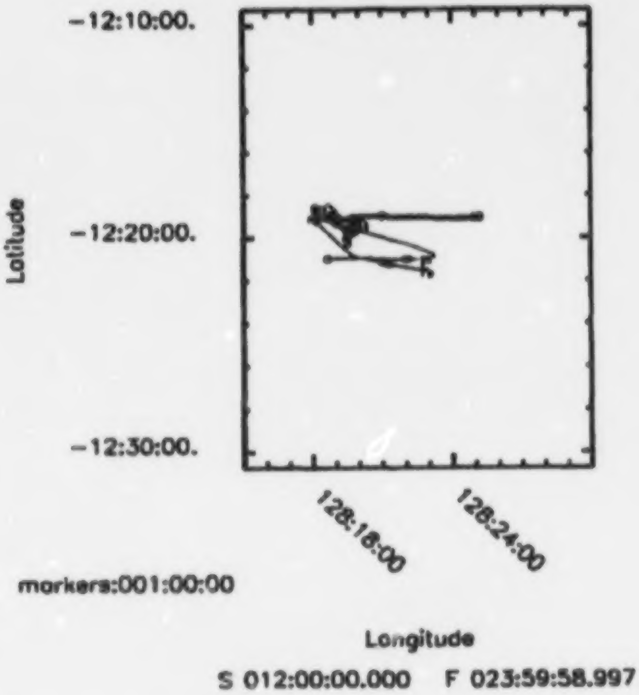

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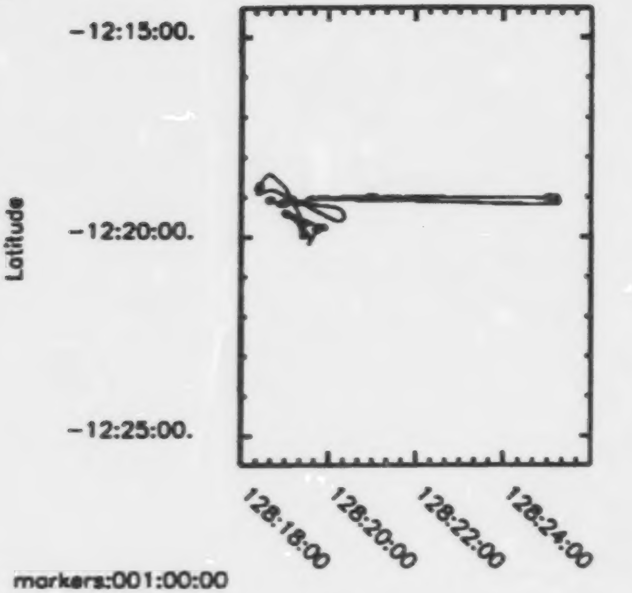
9 Nov 1998



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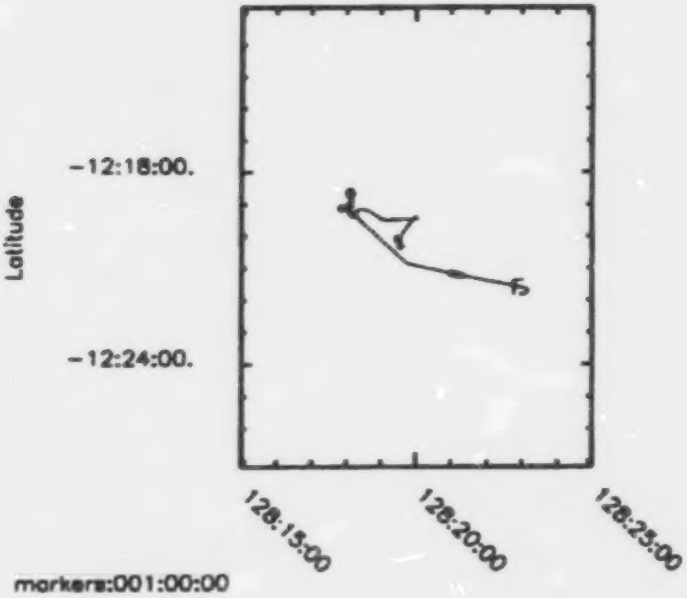

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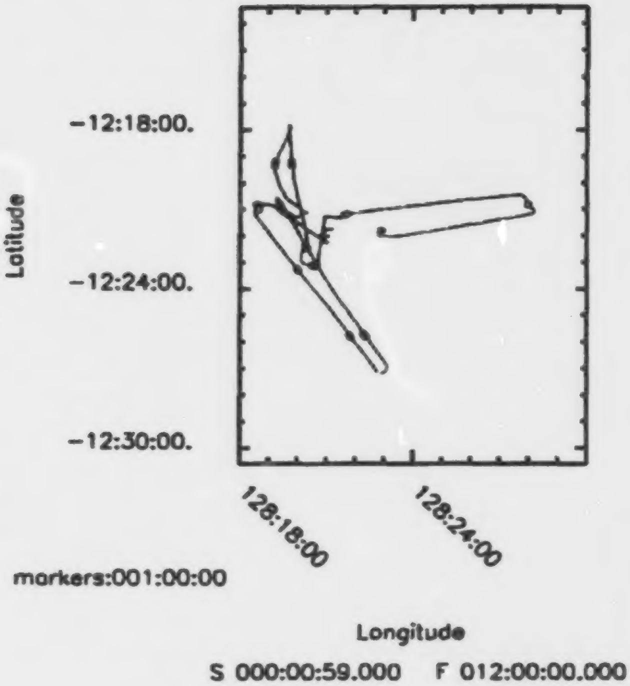
10 Nov 1998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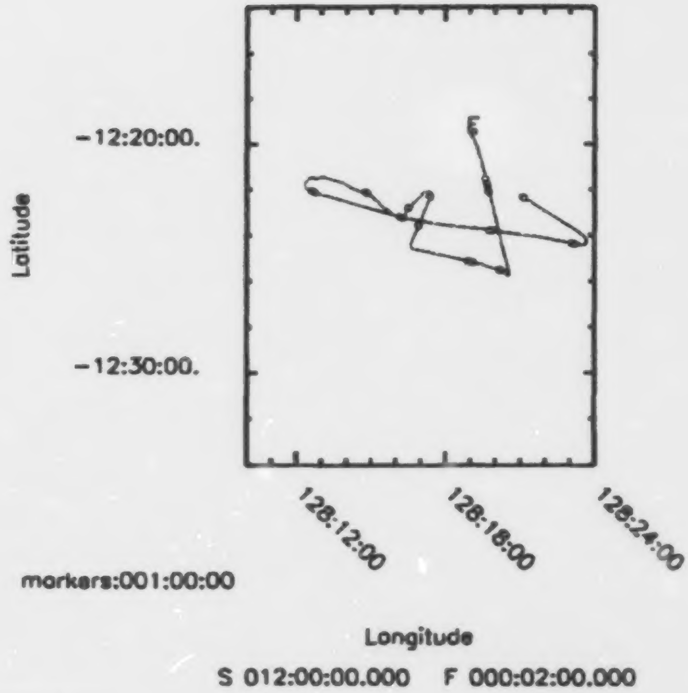
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3.2 Pacific Conquest

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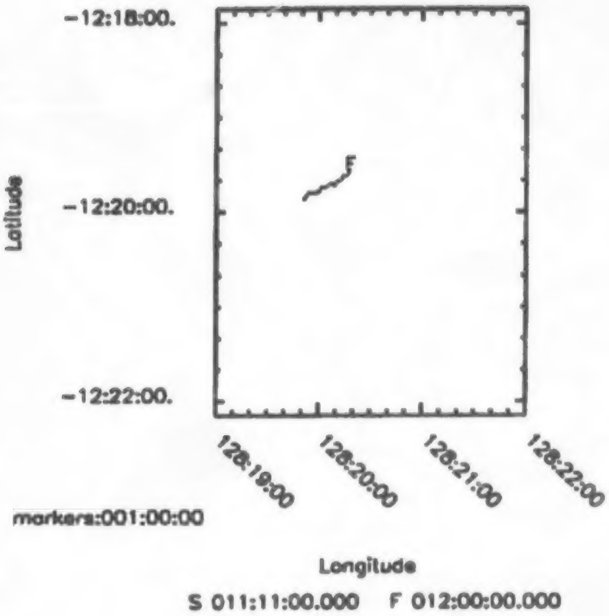

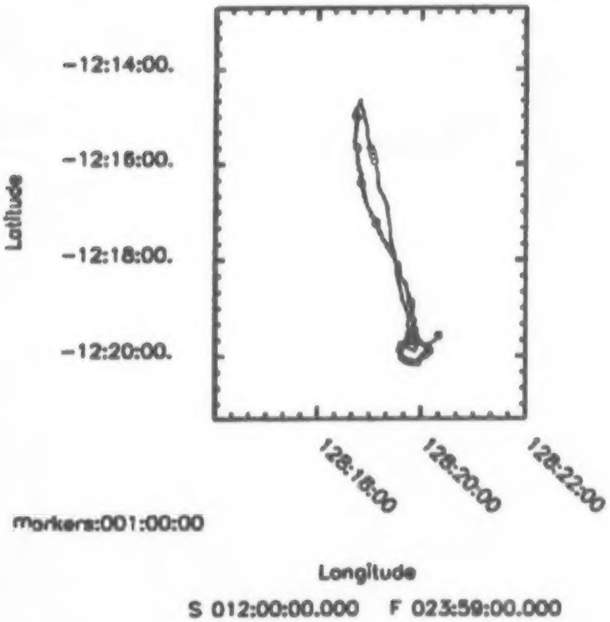

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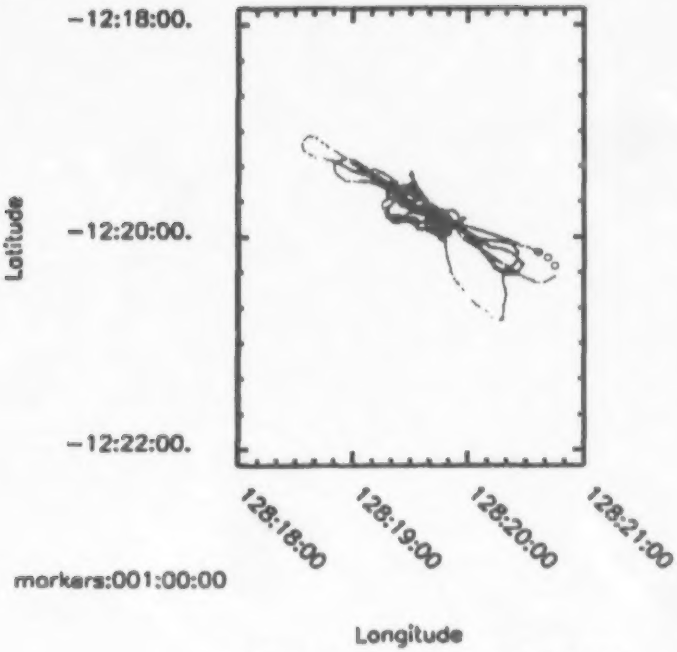

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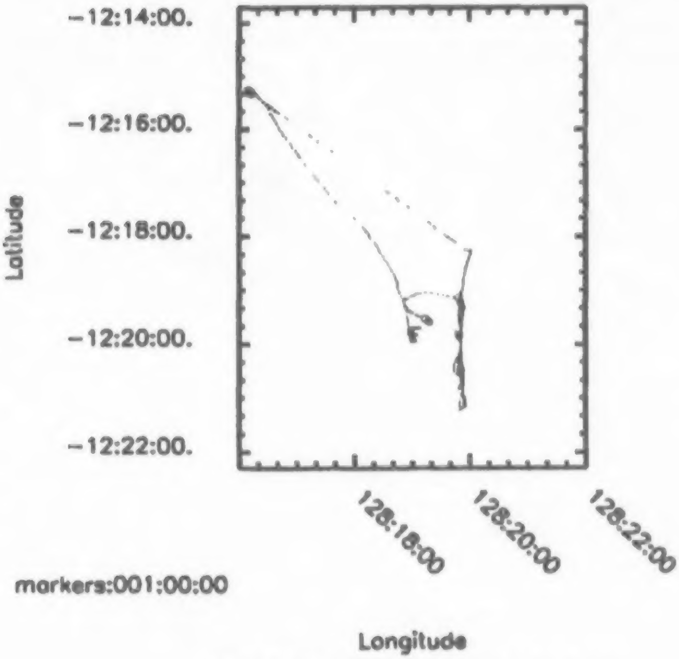

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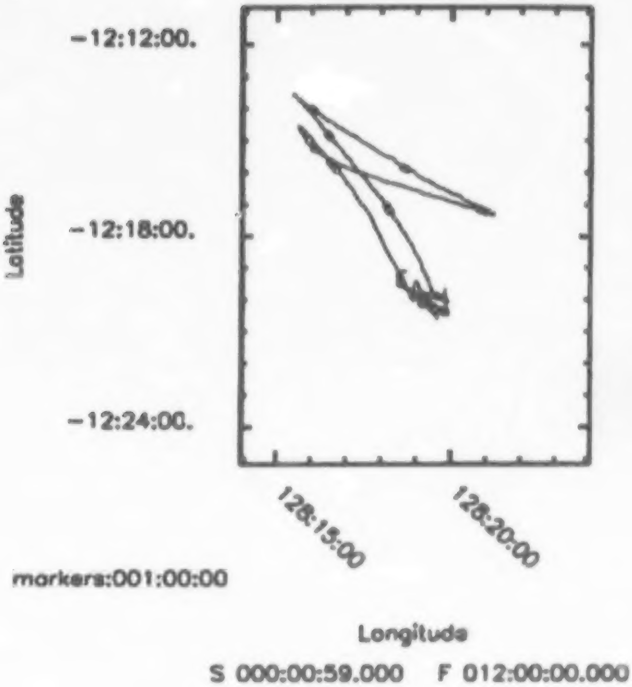
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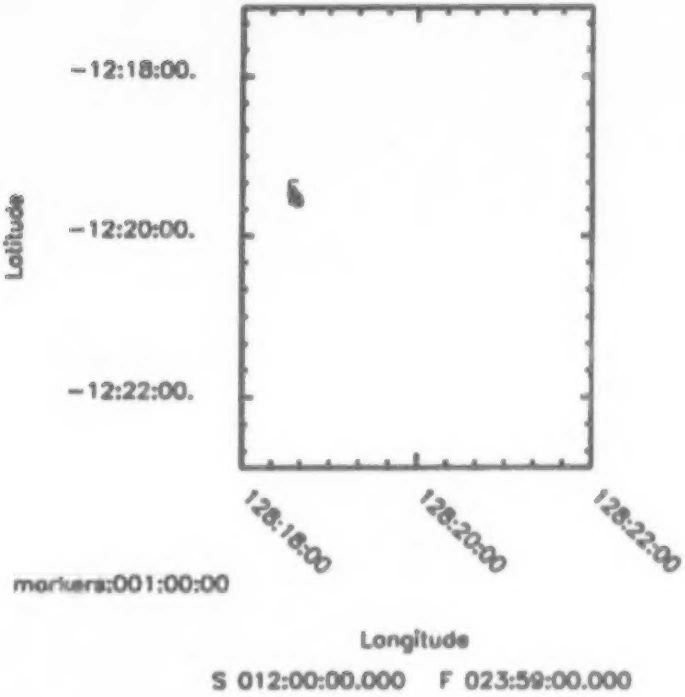
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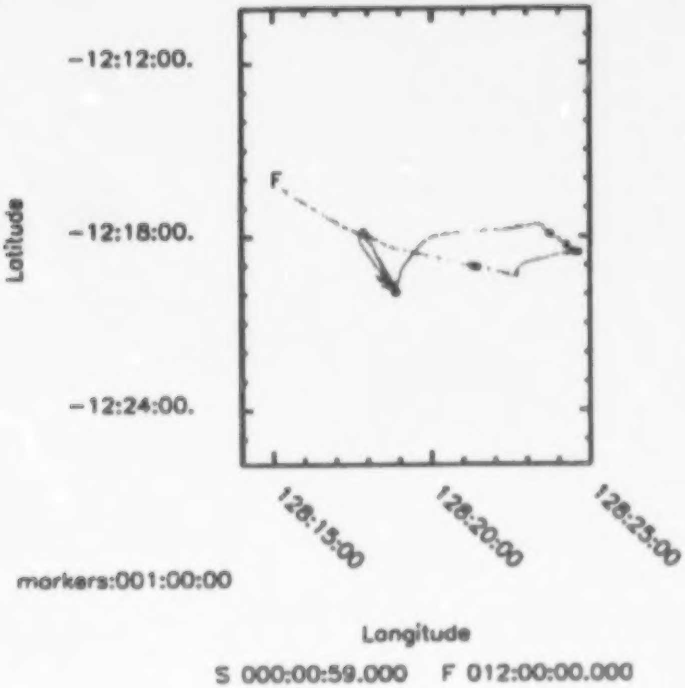

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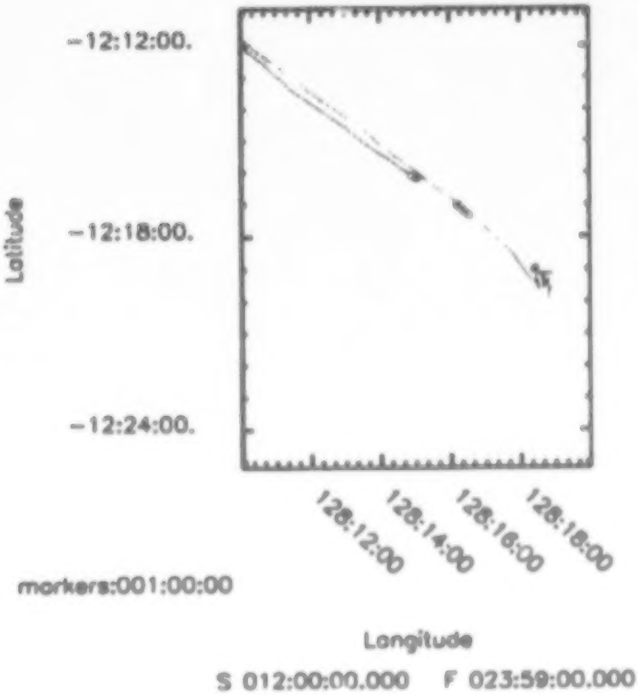

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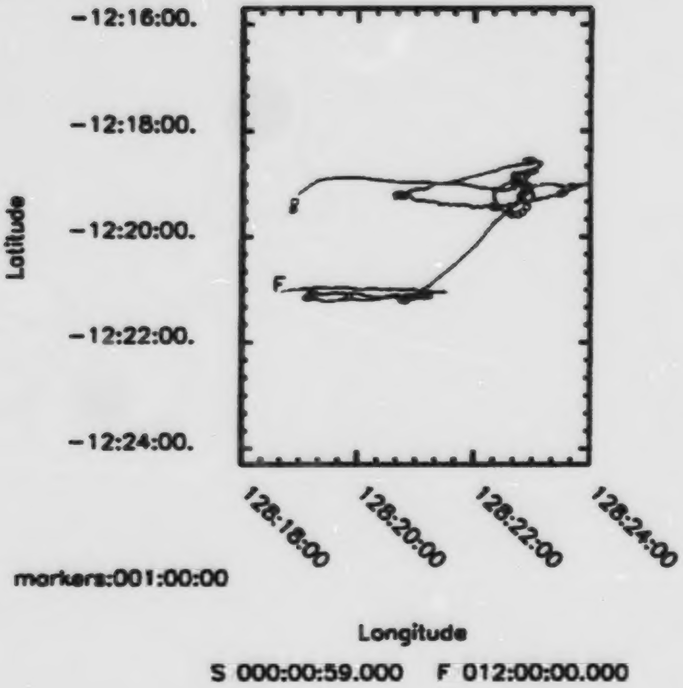
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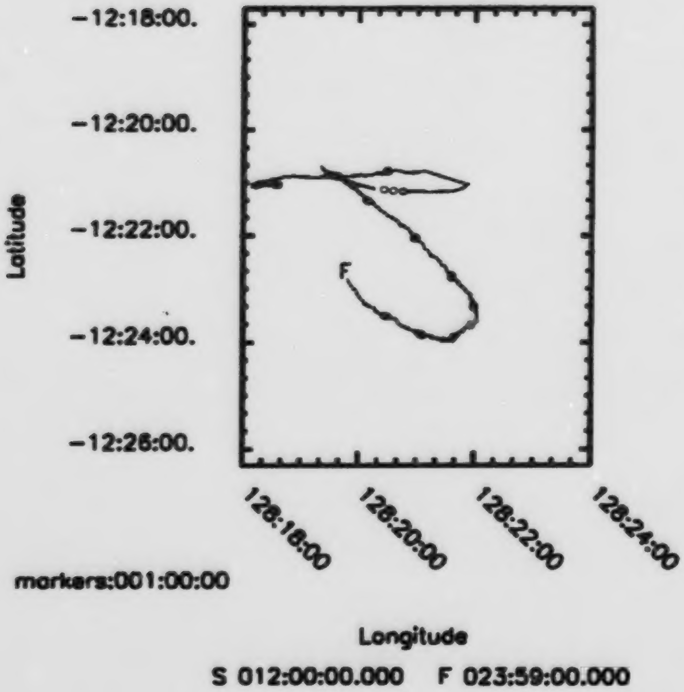
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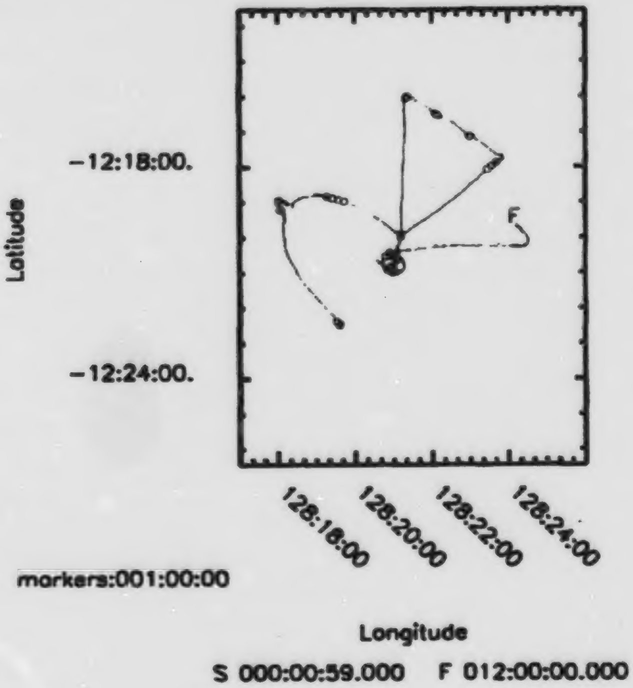
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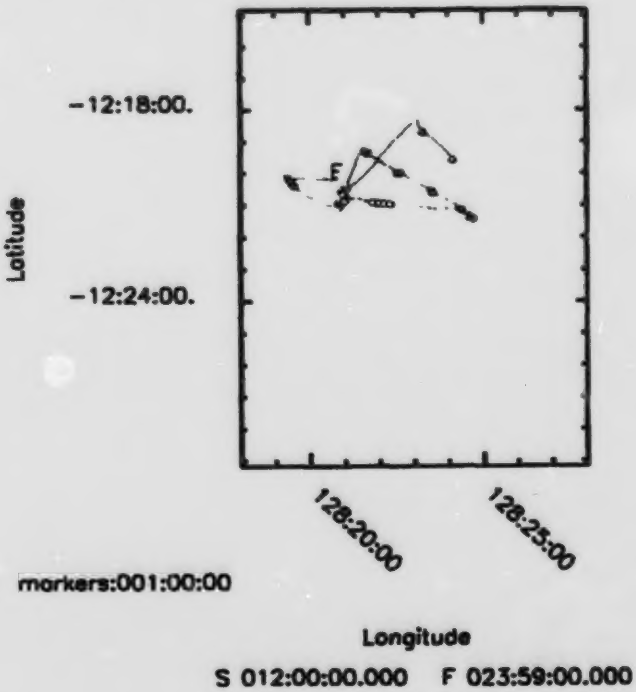
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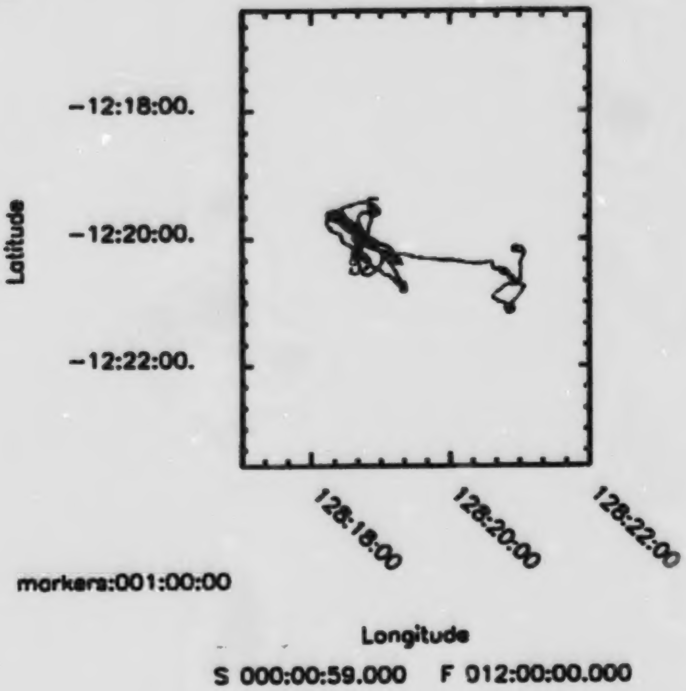
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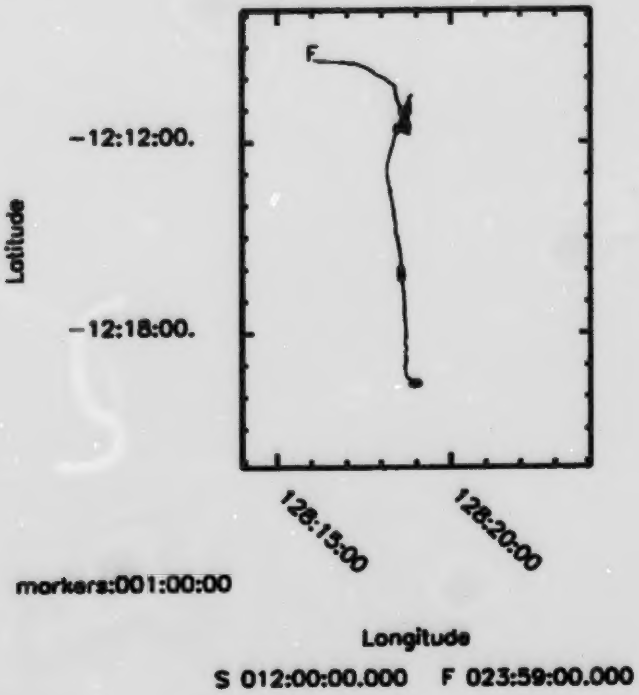
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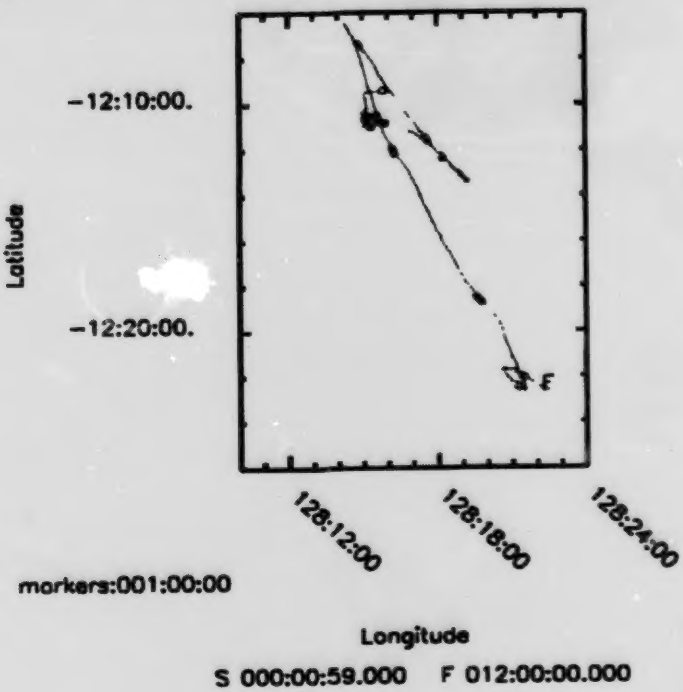
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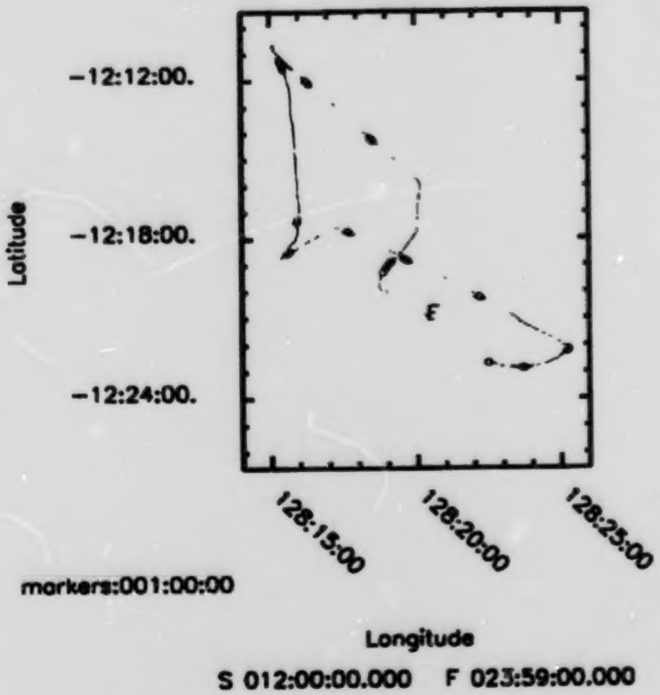
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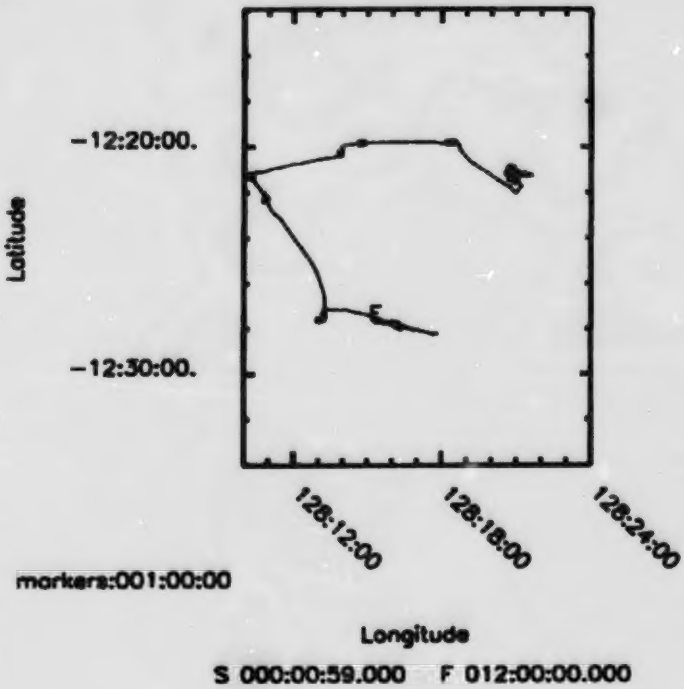
6 Nov 1998



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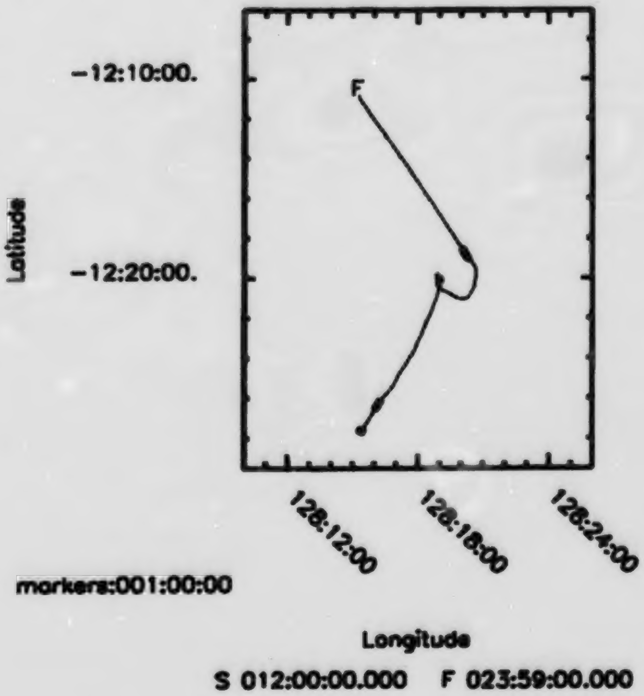

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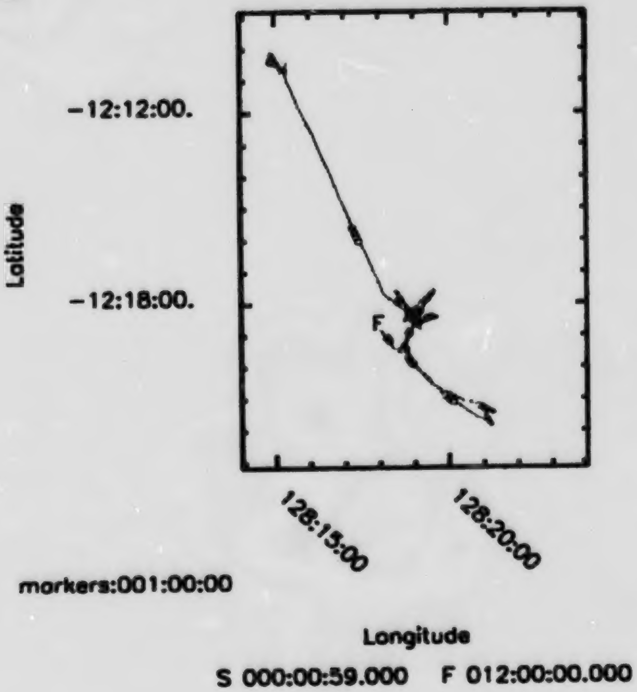
7 Nov 1998



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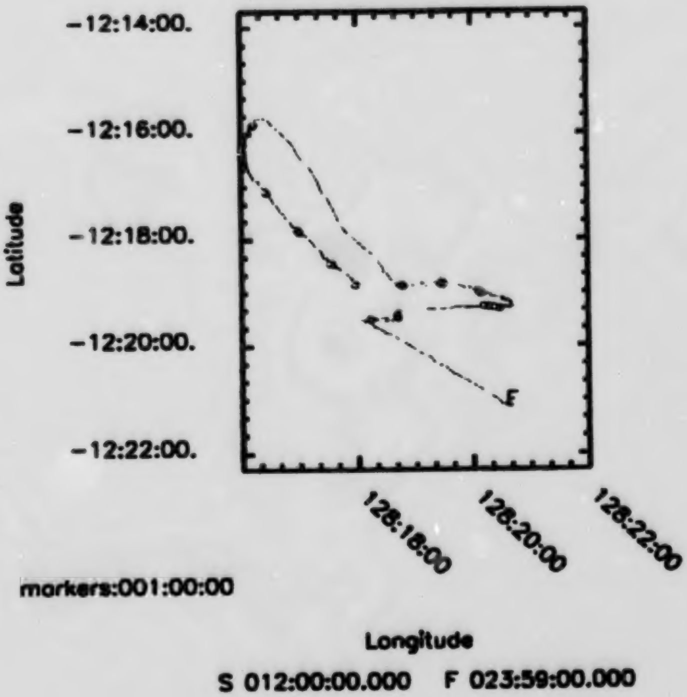

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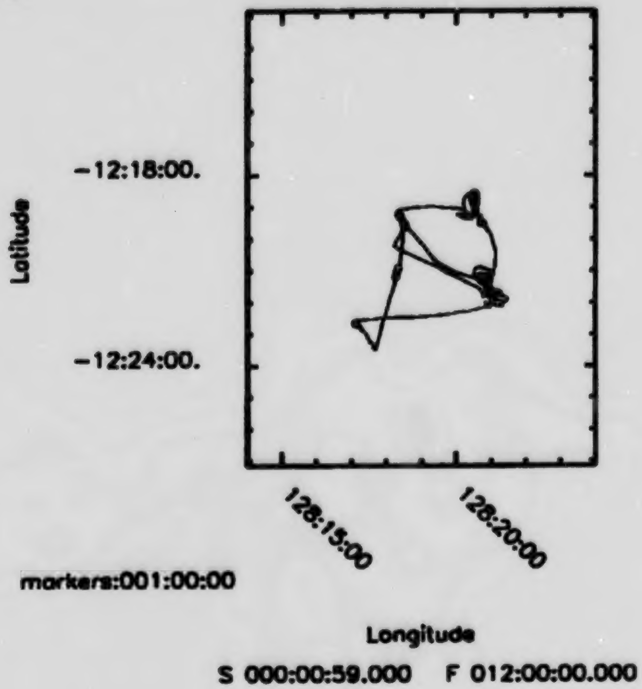
8 Nov 1998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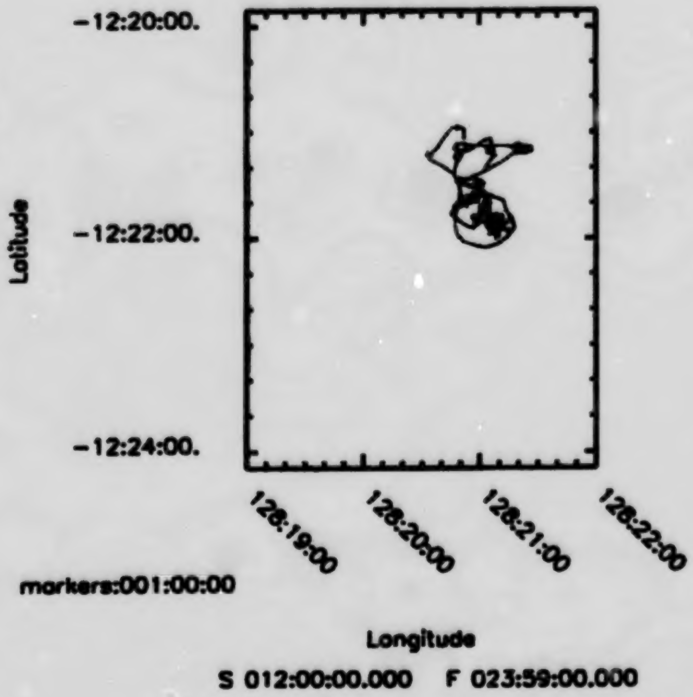
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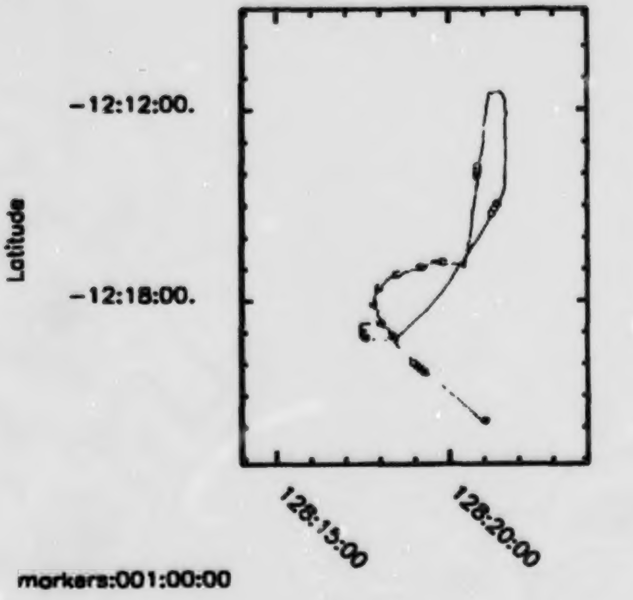
9 Nov 1998



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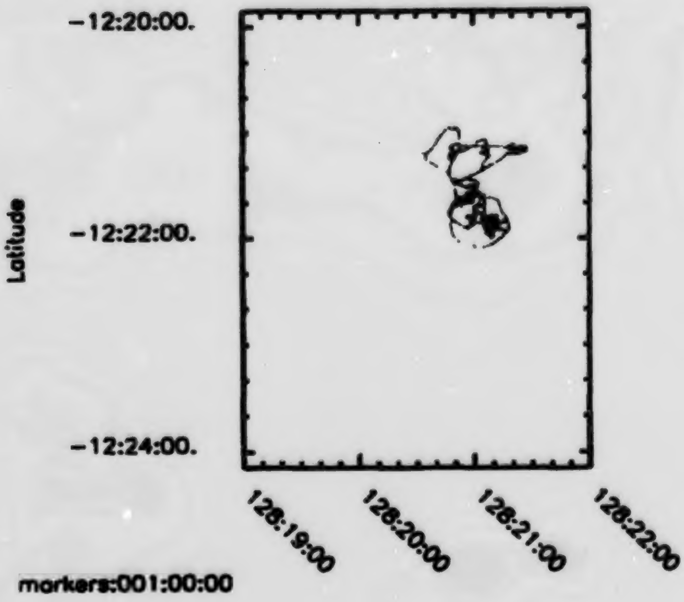

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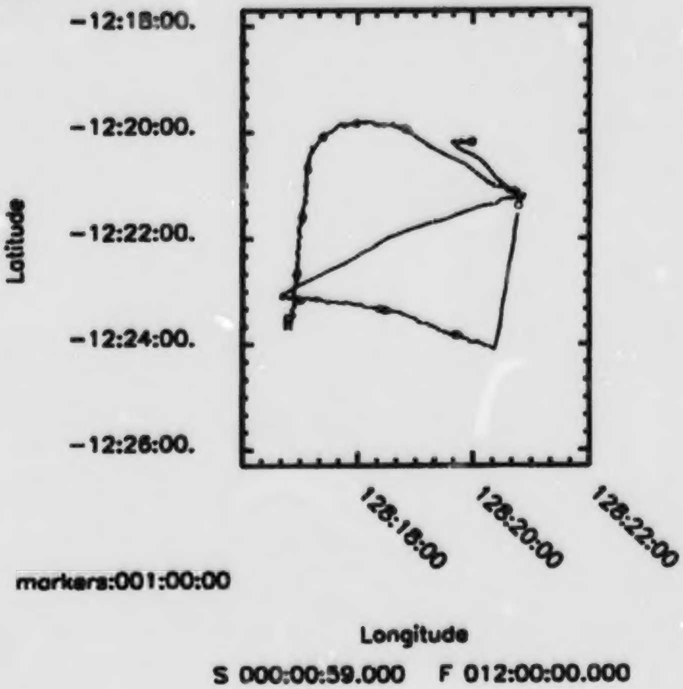
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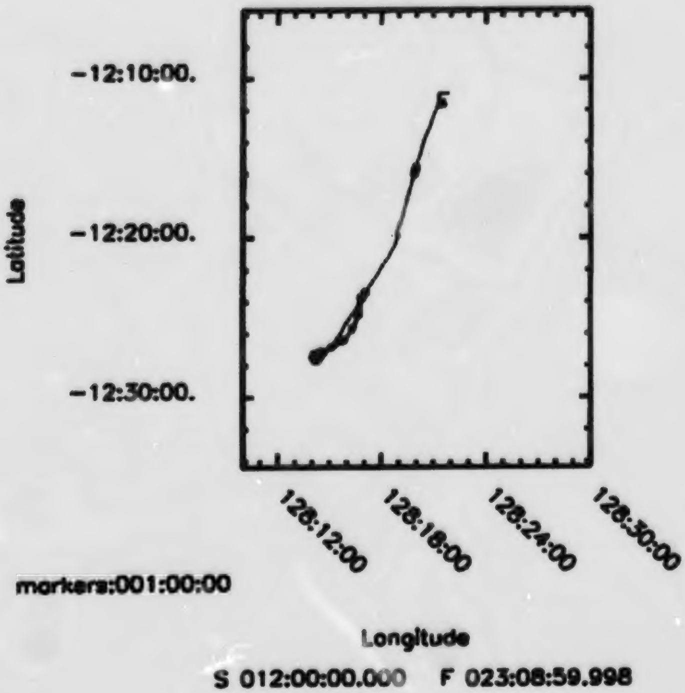
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1998	11	10	21.00000000	-12.39665167	128.28150815
1998	11	10	21.16666603	-12.37340359	128.29444025
1998	11	10	21.33333397	-12.35026641	128.30781343
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1998	11	10	21.66666603	-12.31886806	128.31733797
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1998  11  10    22.50000000   -12 19312787   128.35435610
1998  11  10    22.66666603   -12.19193337   128.35626669
1998  11  10    22.83333397   -12.19185068   128 35719999
1998  11  10    23.00000000   -12 19296460   128.35844689
1998  11  10    23.16666603   -12 19958571   128.35906287
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4. BRIDGE LOGS

This section contains the bridge logs — in chronological order — of FRV Southern Surveyor, TSMV Pacific Conquest and HMNZS Manawanui. Environmental information (on wind, swell, air and sea temperature, water depth and cloud cover) and ship track information (time, position, speed and heading, etc.) were recorded regularly in these logs by the bridge crew of each vessel. The bridge crew of FRV Southern Surveyor also provided Ship Logs, which contain information similar to the Bridge Logs. On FRV Southern Surveyor, entries to the Bridge logs were made every hour (UTC time) while the experiments were conducted, and every 4 hours (local time) for the Ship Logs. On TSMV Pacific Conquest entries to the Bridge Logs were made every hour around the clock (starting at 00:30 UTC daily), and on HMNZS Manawanui entries were made every 2 hours, around the clock (starting at 01:30 UTC daily).

The following sub-sections include:

4.1 Southern Surveyor Bridge Logs
4.2 Southern Surveyor Ship Logs
4.3 Pacific Conquest Bridge Logs
4.4 Manawanui Bridge Logs

4.1 Southern Surveyor Bridge Logs

CRUISE No RDS – 2
H.M.A.S. SOUTHERN SURVEYOR
Date (UTC) 01 2330 NOV.

BRIDGE LOG

Time (UTC)	Position Lat.		Position Long.		Fix Type	Wind Speed (kn)	Wind Dirn True	Sea State	Swell Height (m)	Swell Period (sec)	Swell Direction True	Air Temp °C Dry	Air Temp °C Wet	Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set Speed (kn)	Ship Set Direct	Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
2330	12S	16.1	128E	28.5	G	8	270	2	-	NIL	—	31.5	28	30	104	12	070	—		1/8.	
02/0030	12	11.9	128	40	G	5	225	1	—	NIL	—	31.5	28	30	96	12.4	070	—	.	3/8	
0130	12	07.4	128	58.1	G	5	190	1	—	N.IL		32	28	30	85	12.6	070			4/8	
0230	12	03.5	129	09.5	G.	5	070	4	—	"	—	26	26	30	83	12	070			8/8.	
0330	12	59.8	129	16.9	G	10	070	2	—	"	—	25.5	25.5	30	72	12.2	070			8/8	"[illegible]" [illegible]
0430	11	57.4	129	29.3	G	10	070	2	—	"	—	27	26	30	63	ALL	STOP			6/8	end of [illegible]
0530	11	58.6	129	23.3	G	10	180	2	—	"	—	29	26	30	65	11	250			3/8	
0630	12	02.8	129	10.6	G	5	180	1	—	"	—	30	26.5	30	71	12	250			4/8	
1143	12	19.6	128	20.2	G	1	110	1	—	"	—	35	29	30	107	2.4	156	—		1/8	2km Δ Run
1210	12	20.18	128	19.4	G	7	070	1	—	"	—	35	29.7	30	107	1.6	040	—		1/8	
1235	12	19.7	128	19.5	G	6	070	1	—	"	—	35	30	30	107	2.3	289	—		1/8	
1250	12	19.6	128	19.2	G	4	195	1	—	"	—	35	30	30	107	4.2	154	—		< 1/8	4km Δ Run.
1313	12	20	128	19.6	G	7	195	1	—	"	—	35	30	30	107	4	040	—		< 1/8	
1331	12	19.5	128	19.5	G	11	191	1	—	"	—	35	30	30	107	4	22[illegible]	—		< 1/8	FINNEX 1338
2044	12	19.4	128	18.3	G	—	-	-	-	-	-	25.0	26.0	34.0	106	⚓	-	-	-	1/8	~~[illegible]~~ FROM BOAT & PETROL CANS
03/0100	12	19.5	128	18.4	G.	-	-	-	-	-	-	31.0	28.5	29	107	⚓	-	-	-	3/8	TRANSFER PERSONNEL ~~[illegible]~~

CRUISE No RDS-2.
H.M.A.S. SOUTHERN SURVEYOR
Date (UTC) 03 NOV

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp (Surf) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direc True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direc		
03 45	32S	29.3	153E	18.8	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
0310	12	19.5	128	19.6	G	2.7	—	—	—	—	—	32	29	29	107	–	–	—	—	3/8	
0550	12	19.6	128	19.8	G	[illegible]	[illegible]	4	–	–	–	31	27.5	29	108	4	112	+		2/8	
0615	12	20	128	21	C	LIGHT AIRS			—			32.5	30	29		—	—	—	—	2/8	[illegible] for RASE
0700	12	20.3	128	21.9	G.	6	200	—	-	-	.			34	107	~	–	–	-	3/8	XBT
11.31	12	19.9	128	20.8	G	1	—	0	~	~	—	30	27	29.	105.5	10	100	—	—	0/8.	START TOW 2.
12.00	12	18.3	128	20.7	G	3	—	0	–	–	–	29.5	27.5	29.	105.5	3	090	–	–	0/8.	
1229	12	16.4	128	20.5	G	3	-	0	–	–	–	29.5	27.5	29	106	3	258	–	–	[illegible]	
1307	12	13.9	128	20.8	G	3	-	0	–	–	–	29.	27	29	108	3	259	–	–	–	

CRUISE No RDS - 2.
H.M.A.S. SOUTHERN SURVEYOR
Date (UTC) 04 Nov 98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kts)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kts)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
23.12	12	19.8	128	19.3	G	1	–	0	–	–	–	29	27.	29	105	0	–	–	–	1/8	
00:17	12	17.3	128	21	G	1	–	0	–	–	–	29	27	29	105	4.3.	196	–	–	9/8	START TOW 3.
0045	12	18.9.	128	22.2	G	1	–	0	–	–	–	30.5	27.5	29	105	4	145	–	–	0/8.	
01 18	12	19.8	128	21.3	G	1	–	0	–	–	–	?	?	29	105	4	098	–	–	1/8	
01.54	12	18.8	128	22.6	G	0	–	0	–	–	–	31	29	29	105	4	344	–	–	1/8	
02.34	12	14.6	128	21.6	G	0	–	0	–	–	–	30.5	28.5	29	105	4.2	034	–	–	0/8	
03.18	12	16.9	128	23.6	G	3	54	0	–	–	–	31.5	28.5	29	106	4	151	–	–	0/8	
04.14	12	20.1	128	23.9	G	0	–	0	–	–	–	31.5	28	29	105	4	288	–	–	4/8	
04.58	12	20	128	21.4	G	1	–	0	–	–	–	31.5	28.5	29	106	4	280	–	–	2/8	END TOW 3.
06.46	12	20.2	128	19.7	G	1	–	0	–	–	–	31.5	28.5	29	106	–	–	–	–	3/8	C/NTIRE DEPLOYED
08.43	12	20.0	128	19.2	G	–	–	–	–	–	–	31.8	29.2	29	106	–	–	–	–	4/8	C.T.D.
0937	12	20.0	128	19.2	G	–	–	–	–	–	–	31.0	29.0	30	106	–	–	–	–	3/8	[illegible] MTR DEPLOYED
[illegible] 0001	12	22.3	128	17.6	G	2	160	1	–	–	–	31.	28	29	106	12	206	–	–	4/8	
0100	12	32.8	128	12.0	G	4	170	3	–	–	–	31	28	29	103	12.4	206	–	–	4/8	
0,18	12	35.2	128	10.8	G	32	128	3	–	–	–	31	28	29	103	12.0	197			8/8	
0200	12	44.2	128	07.1	G.	32	120	4	–	–	–	28	27	29	105	12	206			[illegible]/8	
0300	12	53.1	128	02.0	G	25	130	3	2	6	130	29.5	28	29	94.4	12	206			1/8	DROPPING SPD TO [illegible]
0400	13	01.9	127	56.7	G	19	130	3	2	8	130	30	28	29	96.2	12	208			1/8	SPD [illegible].
0500	13	05 2	127	57.7	G	15	130	3	2	6	130	30	28	29	89.3	11 8	026			1/8	[illegible]

CRUISE No ROS 2
~~H.M.A.S.~~ RV SOUTHERN SURVEYOR
Date (UTC) 05 Nov 98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.8	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
0600	12	55.4	128	01.9	G	120	120	3	2	C	120	29.5	28	29	91.9	12	020			8/8	
0630	12	49.6	129	05.2	G.	10	100	2	2	4	120	29.5	28	29	100	12	030	–	–	2/8	Bang ?
1040	12	19.5	128	18.2	G	15	100	3	1.5	4	090	29.5	28	29	103	–	–	–	–	2/8	[illegible] CURRENT THEN [illegible] TO SEAS

CRUISE No RDS - 2.
H.M.A.S. SOUTHERN SURVEYOR
Date (UTC) 06 NOV 198.

BRIDGE LOG

correct all to 31.8°C

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
0135	12	17.8	128	18.6	G	9	085	2	3	5	060	31.5	29.5	29	106	—	—	—	–	1/8	
0245	12	20.4	128	19.2	G	7	085	2	3	6	040	30.5	29.5	29	105	—	—	-	–	5/8	
0333	12	20.6	128	20.8	G	9	088	2	0.3	6	045	31.5	29.5	29	105	6	090	—	-	2/8	
03.58	12	20.8	128	21	G	5	[illegible]	2	0.3	4	090	31.5	29.5	29	105	—	—	03	300	1/8	
05.26	12	21.4	128	21.1	G	11	055	2	0.3	6	066	30.5	29.[illegible]	29	105	9	000	—	–	2/8	XBT @ 04.28 Z
06.15	12	19 4	128	22.4	C	10	070	2	0.5	4	090	30	29.	29	96	—	—			3/8	
06.51	12	20.2	128	19.4	G	12	[illegible]	2	0.5	4	090	30.5	29	29	105	5	171	—	-	4/8	
07.56	12	21.6	128	21.9	G	8	140	2	0.3	7	060	32	29.5	31.8	106	3.5	230	—	–	1/8	~~[illegible]~~
08.37	12	19	128	24	G	8	110	1	—	—	—	32	29.5	31.8	106	3.3	244	1	330	0/8	
09.13	12	20.3	128	22.3	G	6	198	1	—	—	—	31.5	29.5	31.8	108	3.3	244	1	330	0/8	
0949	12	21.6	128	20.1	G	6	198	1	—	—	—			31.8	107	3.5	236	—	–	0/8	FINMEX TOW 4 (4!)
10.03	12	19.9	128	21.9	G	9	032	0	—	—	-			31.8	106	3	036	—	-	0/8	TOW 05.
10.28	12	18.8	128	22.5	G	8	032	0	—	-	-	29	27.5	31.8	107	3	039	—	-	0/8	
11.56	12	17.5	128	23.2	G	8	020	1	0.3	6	070	29	27.5	31.8	106	3	039	—	–	0/8	
12.54	12	16.2	128	24	G	8	000	2	0.5	6	067			31.8	107	3	042	—	–	0/8	
13.22	12	21.2	128	21.9	G	6	210	1	—	-	-			32	106	11	199	—	-	0/8	

CRUISE No. RDS-2
H.M.A.S. SOUTHERN SURVEYOR
Date (UTC) 27/11/98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direc True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direc		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
1255	12	18.7	128	18.8	G	6	259	0	—	—	—	30	29	[illegible]	108	—	—	05	316	—	Drift 01.
13 26	12	18.4	128	19.5	G	4	255	[illegible]	—	—	—	30	29		108	—	—	05	316	—	
1356	12	18.1	128	18.2	G	3	258	0	—	—	—	30	29		108	—	—	05	247	—	

CRUISE No RDS - 2
H.M.A.S. SOUTHERN SURVEYOR
Date (UTC) 08 / 11 / 98

BRIDGE LOG

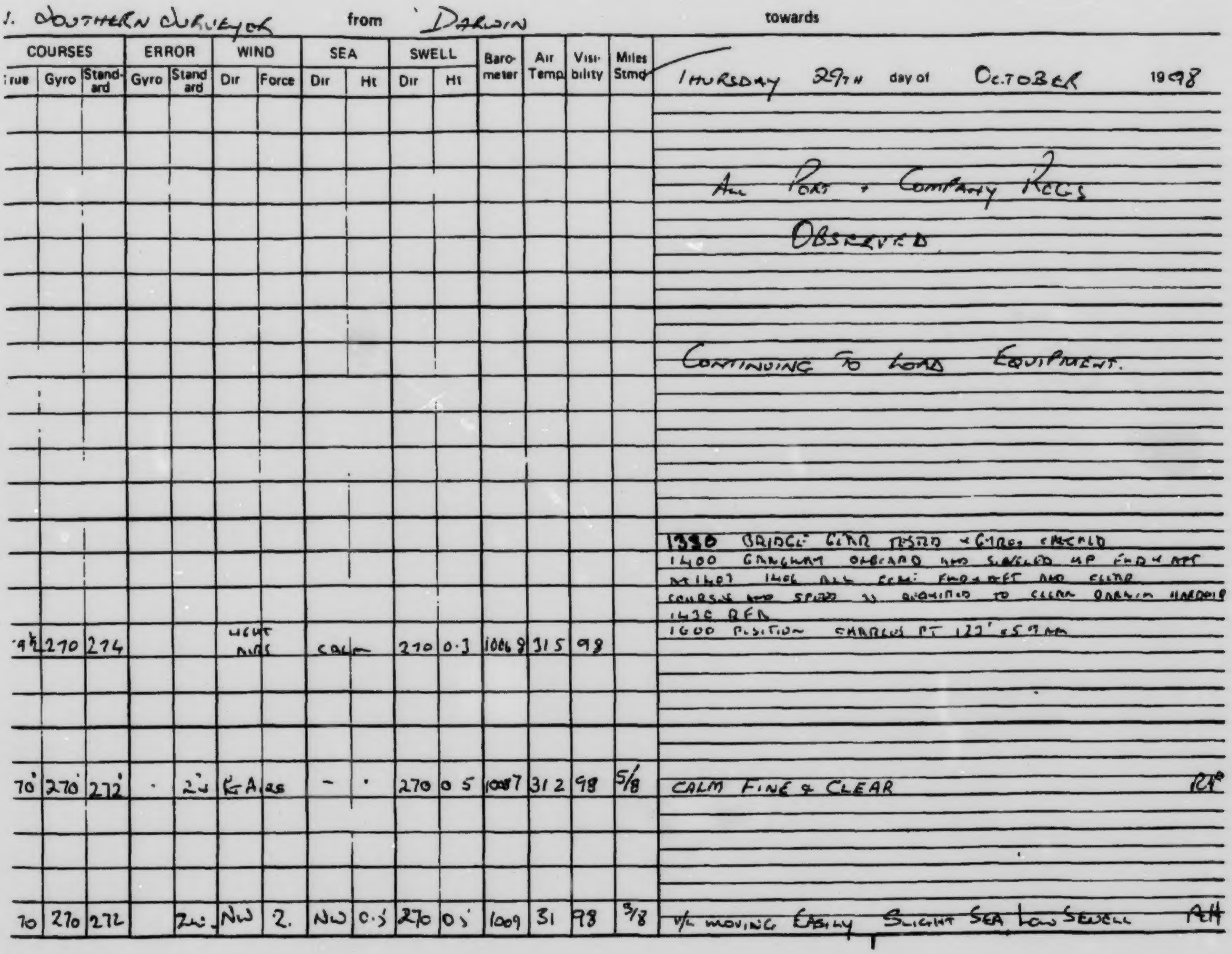
Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
22.55	12	25.8	128	12.5	G	3.	195	0	–	–	–	31.5	29.5		106	–	–	–	–	3/8.	
01.18	12	19.1	128	18.4	G	2		0													
02 30	12	20.	128	23.3	C	12	060	2	1	5	090	31	30	29	98.6	–	–	.5	120	7/8	
05 00	12																				
0500	12	18.7	128	22.5	G	8	060	1	.3	6	070	30.5	29	29	99.3	–	–	.8	080		COMMENCE PDS
0600	12	20	128	25.4	G	8	065	1	.3	6	070	31.5	29	29.	99.3	–	–	.3	065		COMMENCE PDS.
0903	12	20 2	128	26.5	G	–	–	–	0.3	6	090	30 0	27.0	29	105	–	–	–	–	2/8	SRI DEPLOYED
0947	12	20.7	128	27.2	G	–	–	–	–	–	–	[illegible]	29		105	11	342	–	–	—	
10.41	12	26.9	128	18	G	12	352	–	–	–	–				108	7	36	–	–	–	
11.46	12	21	128	17.8	G	5	20	–	–	–	–	29.5	28.5		108	3.4	80	–	–	-	

CRUISE No ROS-2
H.M.A.S. SOUTHERN SURVEYOR
Date (UTC) 09/11/98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec.)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
23.00	12	19.1	128	18.7	G	•	0		—	—	—	28	26	29	108	—	—	0.5	100	2/8	
0520	12	19	128	20	C	8	160	1	.5	5	160	31	29.5	29	101	4.15	090			3/8	Commence SRP run
0749	12	19.0	128	24.3	G	5	000	1	·8	5	160	31.0	29.0	29	100	3.1	090	0.7	340	7/8	XBT.
23.26	12	21.6	128	23.1	G	3	220	1	·8	4	090	29.5	29.0	29	100	–	–	–	-	4/8	Shut down SRP deployed
0134	12	20.6	128	26.0	G	3	270	1	·8	4	090	28.0	26.0	29	99	11.8	262	190	·5	8/8	Seis Run Nº1
0500	12	21.7	128	20.8	C	5	160	2	.5	4	—	29.	27.	29		4.0	180	—	—	7/8	Commence turn "XBT"
0600	12				C	5	160	2	.0	4	160	29.5	27.0	29	100	1.9	150	—	—	7/8	

4.2 Southern Surveyor Ship Logs



1. SOUTHERN SURVEYOR from DARWIN towards

THURSDAY 29TH day of OCTOBER 1998

COURSES			ERROR		WIND		SEA		SWELL		Barometer	Air Temp	Visibility	Miles Stmd	
True	Gyro	Standard	Gyro	Standard	Dir	Force	Dir	Ht	Dir	Ht					
															ALL PORT + COMPANY REGS OBSERVED
															CONTINUING TO LOAD EQUIPMENT.
															1330 BRIDGE GEAR TESTED + GYROS CHECKED 1400 GANGWAY ONBOARD AND SINGLED UP FWD + AFT AT 1403 1406 ALL GONE FWD + AFT AND CLEAR COURSES AND SPEED AS REQUIRED TO CLEAR DARWIN HARBOUR 1430 RFA 1600 POSITION CHARLES PT 122' x 5.9 NM
9½	270	274			LIGHT AIRS		CALM		270	0·3	1006 8	31 5	98		
70°	270°	272°	·	2W	L/AIRS		–	·	270	0 5	1007	31 2	98	5/8	CALM FINE + CLEAR
70	270	272		2W	NW	2.	NW	0·5	270	0·5	1009	31	98	3/8	V/L MOVING EASILY SLIGHT SEA LOW SWELL

M.V. SOUTHERN SURVEYOR from DARWIN towards

	COURSES			ERROR		WIND		SEA		SWELL		Barometer	Air Temp	Visibility	Miles Stmd	FRIDAY 30th day of OCTOBER 1978
	True	Gyro	Standard	Gyro	Standard	Dir	Force	Dir.	Ht	Dir	Ht					
01																TRANSIT TO TRIAL AREA
02																
03																
04	270	270	272		2W			CALM				1009.7	29.5	98		RPS POS TRAWLER STERN ALERT
05																
06																0650 ARR D.S.T.O. POSN 12°20'S, 128°20'E V/L LAID.
07																ON STATION
08		VAR COS				-	-	CALM		-	-	1007	30.7	98	3/8	CALM FINE & CLEAR RP
09																
10		ON STATION.														
11																V/L ON STATION 12°20S 128°20'E
12						SW	10	SW	0.5	.	-	6.99	32	98	4/8	SLIGHT SEA LOW SWELL PASSING SHOWERS AH
13																
14																1415 BOAT TRANSFER SUE ADRIFT TO 'MIMI'
15																V/L ON STATION 12°.20'S 130 21 E
16						NE	6	NE	0.3	150	.75	1006.4	30	98	3/8	
17																1600 BOAT IN WATER. 1645 BOAT ALONGSIDE 1 PERSON TRANSFER.
18																1730 BOAT×2 AWAY 1840 1 BOAT ON BOARD. 1850 WORKBOAT ON BOARD
19																1925 C/o SET 090°T.
20	090	090	085	.	5E	150°	2	150°	0.3	150°	1.0	1009	30.3	98	4/8	SLT SEA & SWELL FINE & CLEAR
21																
22																
23																AH
24	[illegible]	070	084	.	6E	NE	10KN	NE	0.3	—		1010	30.	98	5/8	V/L MOVING EASILY. SLIGHT SEA/LOW SWELL DISTANT STORM ACTIVITY.

CHARTER LOG SHEET No.

STATISTICAL SUMMARY

towards DARWIN

	COURSES			ERROR		WIND		SEA		SWELL		Baro meter	Air Temp	Visi-bility	Miles Stmd	SATURDAY day of 31/10/98 19
	True	Gyro	Standard	Gyro	Standard	Dir	Force	Dir	Ht	Dir	Ht.					
01	090	090	084		6°E	NE	10kts	NE	0.3			1010	30	98		GPS POS 12°19.7 S 129°18.5 E
02																
03																steaming toward Darwin.
04	090	090	084		6°E	NW	5kts	NE	0.75			1009.0	28	98		fine night with a fresh breeze.
05																0505 VHF CH 10 DARWIN HARBOUR CLEAR TO ENTER.
06																0620 A/B CHARLES Pt DIS 3.8 nm A/C 102°T. 0645 A/B No5 BEACON DIS 0.4 nm A/C 161°T.
07		Master's Orders.														
08		[illegible]				160°	2	160°	0.3	-	-	1010.0	26.5	98	2/8	DARWIN HARBOUR.
09																0800 V/L HOLDING 0.2' OFF MAIN WHARF (WORKBOAT AWAY). 0815 WORK BOAT RETURNED 0825 BOAT SECURE / CLEAR TO DEPART
10																0835 QUARANTINE BUOY L/B x 0.18' 0900 CHANNEL ROCK BUOY L/B 0937 [illegible]
11	270	270	271		1W											0930 RFA CO 270°T SET
12						S'ly	5kts	S'ly	0.5	—		1008	32	98	4/8	V/L MOVING EASILY SLIGHT SEA LOW SWELL FINE & CLEAR AH
13																NOON GPS POSITION 12°19.36'S 130°11.44'E
14																towards [illegible]
15																
6	270	270	272		2°W	SE'ly	8kts	SE'ly	0.3		—	1006.1	30	98	6/8	fine with 6/8 cloud
7																
8																
9																
0	270	270	270	-	-	Lt Airs		-	-	CALM		1008.5	29.8	98	5/8	CALM FINE & CLEAR RF
																0845 STOP POS 12°20'S 128°21.3E COMM DRIFTING
		Drifting														V/L DRIFTING
						Lt Airs		Calm.				1009	28	98	3/8	FINE & CLEAR CALM SEA AH.

CHARTER LOG SHEET No

STATISTICAL SUMMARY

M.V. SOUTHERN SURVEYOR from DARWIN towards

	COURSES			ERROR		WIND		SEA		SWELL		Baro-meter	Air Temp	Visi-bility	Miles Stmd.	SUNDAY 1st day of NOVEMBER 1998
	True	Gyro	Stand-ard	Gyro	Stand ard	Dir	Force	Dir.	Ht	Dir	Ht.					
01																DRIFTING AT TRIALS LOCATION.
02																
03																
04						LIGHT AIRS		—	CALM	—		1001.4	28	98		[illegible]
05																
06																0650 MAIN ENGINE
07																ON STATION DSTO WORK.
08		VAR	COS			120°	3	120°	0.5	-	-	1004.4	25.4	95	8/8	HEAVY RAIN SHOWERS. RP
09																
10																[illegible]
1																
2		VAR	CO			140°	5	140	0.5	120	0.5	1002.3	30°	98	6/8	NOON POSITION GPS 12°19.9 S 128°19.1 E AcH.
3																
4																[illegible]
5																
		VAR	COS			LIGHT AIRS		—	CALM	—		1004.4	31.5	98	7/8	
																DST.O STATIONS
		VAR	COS			LT AIRS		-	-	-	-	1006.8	27.6	98	3/8	1920 SRP DEPLOYED CALM FINE & CLEAR RP
																2012 SRP O/B 2050 COMPL PERSONNEL TRANSFER 2056 4G [illegible] 2109 '9' IN WATER - FWE
		[illegible]	'9'	IN		WATER										
						LT AIRS		CALM				1007	28	98	1/8	LIVING QUIETLY AT ANCHOR CALM SEA NO SWELL FINE + CLEAR AcH

CHARTER LOG SHEET No.

STATISTICAL SUMMARY

M.V. SOUTHERN SURVEYOR from DARWIN. towards at Trials location

	COURSES			ERROR		WIND		SEA		SWELL		Barometer	Air Temp	Visibility	Miles Stmd	MONDAY 2nd day of NOVEMBER 1989
	True	Gyro	Standard	Gyro	Standard	Dir	Force	Dir	Ht	Dir	Ht					
01																at ANCHOR. GPS POS 12°19·9S 128 18·3 E
02																
03																
04						270	3kts	RIPPLED		—		1005.3	28.5	98	1/8	fine & clear [illegible] [illegible] a slight [illegible]
05																
06																
07																MAIN ENGINE RIFT ⚓
08		VAR COS				Lt Airs		–	–	–	·	1008.7	30.4	98	1/8	CALM FINE & CLEAR RP
09																0750 COMPL TRANSFER PERSONNEL - CHARGES 0800 SET Co. 070° TOWARD BATHURST Is Spd 12 kts 0820 Deploy 1st Charge.
10																
11						ESE	25kts	ESE	1.0							1124 [illegible] STORM FRONT PASSING.
12	070	070	062	8	8E.	ENE	20kts	ENE	1.2	–		1007.8	26	96/8	8/8	SLIGHT/MOD SEA HEAVY RAIN. AeH
13																
14																1400 GPS POS 11°57.6 S 129 29.3 E A/C 251° 1530 [illegible]
15																
16	250	250	252		2°W	SW	5k	calm				1004.5	30	98	4/8	
17																
18																
19																
20	250°	250°	246°	-	4E	Lt Airs		–	–	-	-	1007.0	29.9	98	2/8	CALM FINE & CLEAR RP
21																2000 ARRIVED BACK ON LOCATION. 2030 TRANSFER PERSONNEL
22																2100 COMM. WHITE TRIAL COURSES 2305 COMP TRIALS
23		VAR														2324 L/C # [illegible] 2336 '9' IN WATER FWE 'LETGO'
24						Lt Airs.		Rippled.				[illegible]	29	98	3/8	RIPPLED SEA LOW SWELL FINE - CLEAR

CHARTER LOG SHEET No.

STATISTICAL SUMMARY

CREW

m.v. SOUTHERN SURVEYOR from towards at Trials location

	COURSES			ERROR		WIND		SEA		SWELL		Barometer	Air Temp	Visibility	Miles Stmd.	TUESDAY 3RD day of NOVEMBER 1998
	True	Gyro	Standard	Gyro	Standard	Dir.	Force	Dir.	Ht.	Dir.	Ht.					
01																at anchor GPS POS 12'19.5 S 128 18.6 E
02	PORT ⚓ '9' IN THE WATER															
03						LIGHT AIRS		CALM		050	·3	1006·8	28·5	99		
04																fine and clear night
05				"Steadies" [illegible] of [illegible]												
06																0615 BOAT TRANSFER FROM KIWI x 2 CANS PETROL
07																
08						LT AIRS		–	–	–	–	1008·6	30·0	98	1/8	⚓ POSN MAINTAINED CALM & FINE RP
09																
10		PT ⚓ '9' IN WATER														1000-1030 TRANSFER PERSONNEL ONTO SS FOR MEETING
11																(8 TRIPS OF RUBS TO KIWI [illegible]).
12						Calm.		Calm		-	-	1008·7	31	98	3/8	SITTING QUIETLY AT ⚓ CALM SEA FINE & CLEAR PETT
13																
14																1430 ⚓ [illegible] NEMC 1450 start main engine
15																commence [illegible] ⚓ 1505 Port ⚓ [illegible] proceeding to [illegible]
16						LIGHT AIRS		calm		–	–	1006·0	32·5	98		1535 arrived at [illegible] location [illegible] [illegible] [illegible]
17																1740 TRANSFERS WITH KIWI
18																
19																Laid on STATION
20		V/L Raid				Lt Airs		–	–	–	–	1007	37·2	98	2/8	CALM FINE & CLEAR RP
21																
22			'Quiet'													2115-2300 TOWING SAP. Co. 0007 [illegible] skis
23																2350 L/G PT ⚓
24						LT AIRS		Calm		-	.	1009	32	98	3/8	Calm Sea FINE & CLEAR.

CHARTER LOG SHEET No. ______ STATISTICAL SUMMARY CREW

M.V. SOUTHERN SURVEYOR from towards ⚓ TRIALS AREA

	COURSES			ERROR		WIND		SEA		SWELL		Barometer	Air Temp	Visibility	Miles Stmd	
	True	Gyro	Standard	Gyro	Standard	Dir.	Force	Dir	Ht	Dir.	Ht.					WEDNESDAY [illegible] day of NOVEMBER 1998
01																CPS POS 12°20 S 128 2[illegible] E let go port anchor. FW/ME
02																2 HALF 'HOUR' NOTICE.
03	PORT		⚓	9[illegible]												
04				water		LIGHT AIRS		calm		—	—	1006 8	28 5	98	1/8	
05																
06																
07																
08						L. Airs		-	—	-	—	1008 2	30 2	98	2/8	⚓ POSN MAINTAINED FINE & CLEAR RP
09																0900 ⚓ Away. - 0900 TRANSFER PERSONNEL
10		VAR														DSTO TRIALS
11																
12						Lt Airs		Rippled		-	.	1008 3	32	98	3/8	Rippled SEA FINE - CLEAR AH
13																
14		VAR														DSTO TRIALS
15																
16						LIGHT AIRS		calm		—	—	1006 1	31 5	98	3/8	fine & clear calm sea.
17																1610 BOAT ALONGSIDE
18	PT	⚓	x 9 S													⚓ POSN 12°20.0 S 128°19.2 E
19																
20						-	-	CALM		-	—	1007 5	31 0	98	4/8	⚓ POSN MAINTAINED CALM & CLEAR
21																
22		P ⚓ 9 on Deck														
23																
24						Calm		Calm		-	.	1008	28	98	3/8	V/L LYING QUIETLY AT ⚓ FINE - CLEAR AH.

STATISTICAL SUMMARY

CREW

M.V. SOUTHERN SURVEYOR from towards ⚓ TRIALS AREA

	COURSES			ERROR		WIND		SEA		SWELL		Baro-meter	Air Temp	Visi-bility	Miles Stnd.	THURSDAY 5th day of NOVEMBER 19
	True	Gyro	Stand-ard	Gyro	Stand-ard	Dir	Force	Dir	Ht.	Dir.	Ht.					
01																GPS POS 12° 20.02 S 128° 19.25 E.
02		PORT ⚓ 9'														
03		in water.														
04						CALM		CALM		—	—	1006.2	29.5	99	3/8	fine clear & still night PH
05																
06																
07																
08						CALM		-	-	-	-	1008.4	30.5	98	3/8	⚓ Posn Maintained Fine & Clear RP
09																0830 Current mtr o/b. Transferring Personnel 0935 Comm Gyroscope Transfer
10																0900 Comm weighed ⚓ 0918 ⚓ Anchoring. Sat Co. 205° 1000 Comm deploy Charges
11																
12						ESE	25kn	ESE	2m	.		609	28	98	4/8.	Mod Sea. Passing Showers A.B. NOON POS GPS 12° 47.9 S 128° 06.6 E.
13																1403 A/C 028° Posn GPS 13 10.0 S 129 55.1 E
14																Completed [illegible]
15																[illegible] continued
16	02C	02C	021	—	5°E	E'ly	10k	E'ly	.5	E'ly	1½m	1006	29	98	3/8	fine & clear [illegible] PH
17																
18																⚓ 1945 Posn. 12° 19.5S 128° 18.2E
19																
20		V/L	⚓			100°	3	100°	0.5	090°	1.5	1007.3	29.8	98	3/8	Sl. SEA & SWELL FINE & CLEAR RP
21																Current mtr Deployed.
22		Pt	⚓													
23																
24						NNE	10kn	NE	0.5	E'ly	1.0	1008	29	98	2/8	SLIGHT SEA LOW SWELL FINE & CLEAR

CREW

M.V. SOUTHERN SURVEYOR from towards at Trials Area

	COURSES			ERROR		WIND		SEA		SWELL		Barometer	Air Temp	Visibility	Miles Stmd	Friday 6th day of NOVEMBER 1998
	True	Gyro	Standard	Gyro	Standard	Dir.	Force	Dir.	Ht	Dir	Ht.					
01																GPS POS 12°19.5S 128°18.28E
02		at ⚓ 9'														
03	in the water.															
04												1006.2	29½	98		fine & clear night
05																
06						E'ly	1018	E'ly	0.5	E'ly	1.0					
07																0735 CURRENT MTR O/B
08						070°	2	070°	0.3	090	1.0	1007.6	30.3	98	2/8	⚓ POSN MAINTAINED SLT SEA & SWELL FINE & CLEAR RP
09																0820 Comm Weigh Ft ⚓ 0830 ⚓ ANCHOR. SET Co 160T FOR SEA NOISE EXC.
10		VAR.														1000 FLOATS NOT SIGHTED DUE TO TIDAL FLOW 1110 RETURN TO 'KIWI' - TRANSFER MARK & SUE.
11																
12						SSE	2	E.	0.5	090	0.5	1007	31.5	98	3/8	SLIGHT SEA LOW SWELL FINE & CLEAR
13																
14																HLA [illegible] I [illegible] [illegible] [illegible] make me staffed 1402-1445
15		VAR				E'ly	2	E	0.3	E	0.5	1006.5	71	98	1/8	HLA [illegible] [illegible] : [illegible] in [illegible] make me staffed.
16																1615 ENGINE START.
17																
18																D.S.T.O. STATIONS.
19																
20		VAR cos				070	2	070	0.3	090	0.5	1006.9	30.3	98	3/8	SLT SEA & SWELL FINE & CLEAR
21																2010 SKP DEPLOYED Co 050T x 3kts
22		VAR														2208 Comm RUN. 2212 SKP O/B SET Co 200T.
23		Pt 9														2320 S/G Pt ⚓ 2330 ⚓ to WATER Fine
24		⚓				NE'ly	2.	NE	0.3.	E	0.5	1007	30	98	4/8	2336 DEPLOY CURRENT MTR TO 25mts SLIGHT SEA/LOW SWELL FINE, CLEAR

M.V. SOUTHERN SURVEYOR from towards [illegible] area

	COURSES			ERROR		WIND		SEA		SWELL		Barometer	Air Temp	Visibility	Miles Stmd.	Saturday 7th day of NOVEMBER 1998
	True	Gyro	Standard	Gyro	Standard	Dir	Force	Dir.	Ht.	Dir	Ht					
01																CPS POS 12°25·66'S 128°30·46'E.
02	at [illegible]															
03	in the water															
04						N'ly	3-4	RIPPLED		N'ly	0·5	1006·3	28	98	7/8	[illegible] maintained. [illegible] in the night. [illegible]
05																
06																
07																MAIN ENGINE [illegible] 0700 0715 [illegible] AWEIGH. 0730 [illegible] SEA NOISE BUOYS Comm. Retrieval.
08						Calm		Calm		-	-	1006	29	98	3/8.	0820 All Gear O/B - PROCEED towards KIWI,
09		PT [illegible] 'Y'														0815 TRANSFER PERSONNEL TO KIWI. 0825 [illegible] 0936 'Y' in WATER [illegible]. 12°18·65 [illegible]·19·0E
10																
11																
12						Calm		Calm		-	.	1007	31	98	3/8	[illegible] LYING QUIETLY AFLOAT Calm Sea Low Swell Fine & Clear [illegible]
13																GPS POS at [illegible] 12°18·7'E 128°19·0'E. 1250 SS [illegible]
14	at [illegible] 'Y'															1400 [illegible]
15	in the water.															1504 [illegible] 1550 [illegible].
16						Calm		calm		N'ly	·5	1006·5	31·5	98	4/8	1605 SS [illegible]. [illegible]. [illegible]
17																
18																
19																
20						CALM	-	-	-	-	-	1007·6	30·9	98	6/8	[illegible] MAINTAINED CALM & CLEAR RP
21																2145 Comms PERSONNEL TRANSFER 2150 Comm. weigh [illegible]
22	[illegible]															2200 CEASE HEAVE [illegible] (2 ON DECK) Comm. Drift
23																2210 DEPLOY SRPTD [illegible]. 2336 SRP O/B 2345 PT at 'Y'
24						Calm		-	-	-	-	1007	30	98	7/8	Calm SEA FINE & CLEAR [illegible]

M.V. SOUTHERN SURVEYOR from towards at [illegible] area

Sunday 8th day of NOVEMBER 1998

	COURSES			ERROR		WIND		SEA		SWELL		Barometer	Air Temp.	Visibility	Miles Stmd.	
	True	Gyro	Standard	Gyro	Standard	Dir	Force	Dir	Ht	Dir	Ht					
01																GPS GCS 12° 17.9 S 128° 17.9 E
02	at [illegible]															
03	[illegible]															
04						LIGHT AIRS		RIPPLED		—		1006.2	29½	98	2/8	fine [illegible] clear night.
05																
06																0640 MAIN ENGINE START. 0650 [illegible]
07																0725 RESCUE BOAT In Water DS.T.O STATIONS.
08		VAR CDS.				CALM		-	-	-	-	1007.3	31.2	98	3/8	CALM FINE & CLEAR RP
09																0930 Comm Deployment sea noise equipment
10																[illegible] 0924 Comp Deployment 12° 23.5 S 128° 20.2 E
11																0930 4B O/B RETURN TO KIM 1025 TRANSFER [illegible] → KIM
12		VAR				Calm		-	.	.	.	1007	32	98	6/8	
13																1345 stopped [illegible]
14		VAR														1450 start ME – [illegible] 1530 stopped [illegible] ME.
15																
16						LIGHT AIR		—	—	—	—	1006.6	31.5	98	2/8	fine [illegible] clear [illegible].
17																1600 start ME – [illegible]
18																1820 MAIN ENGINE SHUT DOWN
19																1910 MAIN ENJ START
20		VAR CDS				CALM		-	—	-	-	1006.8	30.5	98	3/8	CALM FINE & CLEAR RP
21																2050 - Comm. Personnel Transfer 'S' to SS 2110 DEPLOY SRP Co 090 x [illegible]
22		VAR														
23	[illegible]		8													2215 SRP O/B 2315 [illegible] 2330 [illegible] FINE.
24						Calm		-	-	-	.	1006	30	98	7/8	CALM FINE - CLEAR [illegible]

M.V. SOUTHERN SURVEYOR from towards D. Trials area

Monday 9th day of NOVEMBER 1998

	COURSES			ERROR		WIND		SEA		SWELL		Baro-meter	Air Temp.	Visi-bility	Miles Stnd.	
	True	Gyro	Stand-ard	Gyro	Stand-ard	Dir	Force	Dir	Ht	Dir.	Ht.					
01																GPS POS'N 12°19.096 S 128° 18.602 E [illegible] 197' x 0.262 [illegible]
02	at	⚓	R 8													
03	[illegible]	[illegible]														
04						LIGHT AIR		CALM		—		1006.8	29	98	9/8	Fine & clear [illegible] [illegible] night. PH
05																
06																
07																
08						CALM		-	-	-	-	1007.7	30.2	98	3/8	[illegible] Posn MAINTAINED CALM & CLEAR RP
09																
10		[illegible]	⚓	'8'												0750-0830 DIVERS FROM 'KIWI' SECURE CHAIN DANGLING FROM SB MOON POOL
11																
12						Calm		-	-	-	-	1008	32	98	4/8.	Calm sea Fine & CLEAR AH
13																
14		PE	⚓	'8'												1400 [illegible] [illegible] alongside - 1520 1510 ½ NEMO. [illegible] [illegible] [illegible]
15																1530 commenced [illegible] [illegible]
16	090	090	C87	2'c		160	5Kt	160	.3	160	.5	1006.7	31.	99	7/8	1540 [illegible] away [illegible] for [illegible].
17																
18																D.S.T.O STATIONS.
19																
20		VAR Res				CALM		-	-	-	-	1009.5	30.7	98	3/8	CALM FINE & CLEAR RP
21																
22		VARIOUS														COURSES, SPEEDS TO DSTO POINTS
23																2240 [illegible] 2254 [illegible] '9' IN WATER - FLUX
24		PS	⚓ '9'			SSE	10kt	SSE	0.5	-	-	1007	30	98	6/8	STORM ACTIVITY IN AREA. AH

CREW

M.V. SOUTHERN SURVEYOR from towards Trial area

	COURSES			ERROR		WIND		SEA		SWELL		Baro-meter	Air Temp	Visi-bility	Miles Stmd.	Tuesday 10 day of NOVEMBER 1998
	True	Gyro	Stand-ard	Gyro	Stand-ard	Dir.	Force	Dir.	Ht	Dir	Ht					
01																GPS POS 12°18.6 S 128°18.0 E
02																
03	[illegible]															
04						NE	5-10	M1	.5	—	—	1006	28.5	98	2/8	[illegible] PH
05																
06																
07																0725 MAIN ENGINE LIFT
08		VAR	COS			Calm		-	-	-	-	1007.9	30.2	98	4/8	CALM FINE & CLEAR RP
09																0955 MAIN ENG SHUT DOWN.
10																0940 MAIN ENG START. D.S.T.O STATIONS
11																1130 ENG SHUT DOWN.
12		VAR	COS			270°	2	270	0.2	090	0.5	1008.2	28.3	96	7/8	SLT SEA & SWELL RAIN SHOWERS AT TIMES RP
13																1215 [illegible]
14																1425 [illegible] 1507 [illegible]
15																
16		VAR	Co			160	2	SLY	0.7	—	—	1006.0	29	98	7/8	[illegible] PH
17																1730 GPS POS 12°26.1 S 128°22.2 E
18																
19																DS.T.O STATIONS.
20		VAR	COS			160	2	160	0.5	-	-		29.5	98	3/8	SLT SEA & SWELL FINE & CLEAR
21																
22		VAR	COs		TO	DSTO		REQUIREMENTS								[illegible]
23																
24						NE	2.	NE	0.5			1006	29	98	2/8.	[illegible] SEA [illegible] [illegible] FINE & CLEAR

M.V. SOUTHERN SURVEYOR from towards W) Trials area

	COURSES			ERROR		WIND		SEA		SWELL		Baro-meter	Air Temp	Visi-bility	Miles Stmd.
	True	Gyro	Stand-ard	Gyro	Stand-ard	Dir.	Force	Dir	Ht	Dir	Ht.				
01	Co VAR														
02															
03															
04						SE	5–7	calm		—	—	1005.9	26	98	3/8
05															
06															
07															
08		VAR	C/S			CALM		–	–	–	–	1007.4	30.0	98	5/8
09															
10		VAR													
11															
12						SSE	15/18	SSE	1.0	SE	C.S.	1007	31	97	8/8
13	086	086	079												
14															
15															
6															
7															
8															
9															
0															
1															
2															
3															
24															

Wednesday 11th day of NOVEMBER 1998

Trials continue.

fine & clear with stars about. RW

D.S.T.O STATIONS.

0715 CHANGE SEA NOISE FLOATS
CALM O'CAST & FINE RP
0901 COMPLETE RETRIEVAL HLA NOISE EQUIPMENT.

0935. LAUNCH WORK & LIFE BOATS TO RETRIEVE
VLITE ARRAY.
1130 WORK & LIFEBOATS O/B.

1140 COMPLETE TRIALS SET CO FOR DARWIN
SLIGHT/MOD SEA HVY RAIN

4.3 Pacific Conquest Bridge Logs

CRUISE No DERA TRIALS.
~~H.M.A.S.~~ M.V. PACIFIC CONQUEST.
Date (UTC) 29-10-98.

BRIDGE LOG

TEMPS TAKEN ON FORE DECK IN PARTIAL SHADE.

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eights)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
00 30.	12°S	20.373	129°E	26.846	GPS	0.5	270	1.2	0	0	0	31°C	—	—	61	8.5	270°	—	—	5/8.	IN TRANSIT TO TRIALS SITE.
01.00	12°S	20.00	129°E	20.515	GPS	0.5	240	1	0	0	0	31°C	—	—	57	8 5	270°	—	—	5/8	IN TRASIT TO TRIALS SITE.
01:30.	12°S	20.329	129°E	19.583	GPS	0.5	240	1	—	—	—	31°C	—	—	57	1	270°	—	—	5/8	SLOW AHEAD IN PREP FOR ULRICA TEST DEPLOY ①
02.00	12°S	20.885	129°E	19.571	GPS	0.5	220	1	—	—	—	33°C	—	—	57	1.5	168°	—	—	5/8	DRIFT WHILE WAITING FOR RECOVERY ETA.
02 30	12°S	20.780	129°E	19.55	GPS	0.6	220	1	—	—	—	33°C	-		57	1 2	319°T	—	—	5/8	DRIFT AWAITING RECOVERY.
03.00	12°S	20.283	129°E	19.31	GPS	0.5	220°	1	—	—	—	34°C	—	—	57	0 4.	098°T	—	—	5/8	RECOVERY OF TEST ULRICA ①.
03.30.	12°S	20.056	129°E	15.215	GPS.	0.5	220°	1	—	—	—	31°C	—	—	55	9	276°T	—	—	5/8	RESUMED TRANSIT TO TRIALS AREA. 03:15.
04:45	12°S	19.93	129°E	06.08	GPS	0.5	250°	1	—	—	—	33°C	—	—	77	9	270°T	—	—	5/8	IN TRANSIT TO TRIALS SITE.
06:30	12°S	20.026	128°E	50.977	GPS	0.8	250°	1	—	—	—	33°C	—	—	90	8.5	270°T	—	—	5/8	IN TRANSIT TO TRIALS SITE
07:00	[illegible]	[illegible]	128°E	47.06	G	.5	250°	1	—	—	—	33°C	--	-	93	7 9	270°T	—	—	5/8	IN TRANSIT TO TRIALS SITE
07.30.	12°S	20.013	128°E	44.586	GPS	0.5	270°	0	—	—	—	31.5°C	—	—	95	8.2.	270°T	—	—	5/8	IN TRANSIT TO TRIALS SITE.
08 00	12°S	19.911	128°E	38.48	GPS	0	—	0	—	—	—	31.5°C	—	—	96.	8 2.	270°T	—	—	4/8	INTRANSIT. ISOLATED SHOWERS + STORMS
08.30	12°S	19.9	128°E	33.708	GPS	0	—	0	0.2	5sec	250°	31°C.	—	—	98.	8.1	270°T	—	—	4/8.	IN TRANSIT TO TRIALS SITE.
08:55	12°S	19.942	128°E	30.450	GPS	0	-	0	0.2	5sec	260°	31°C	—	—	68	8 4	270°T	—	—	4/8	EMERGENCY MUSTER DRILL ~~[illegible]~~ 09:00
09 30	12°S.	19.977	128°E	25.713	GPS	0.5	W	0	0.2	5sec	260°	30.5°C	—	—	101	8.2	270°T	—	—	4/8	IN TRANSIT TO TRIALS SITE.
10:00	12°S	20.02	128°E	21.500	GPS	0.5	W	0	0.2	5sec	250°	30°C	—	—	103.	8 2.	270°T	—	—	4/8	TRANSIT TO TRIALS SITE.
10.30.	12°S	20.011	128°	20.80	GPS	0	0	0	0	—	—	30°C	—	—	104	0.1	270°T	—	—	4/8	~~ARR TRIALS SITE 10:10~~ STAND BY TO DEPLOY.
11:00.	12°S	19.98	128°	19.741	GPS	0	0	0	0	—	—	29.5°C	—	—	104	0 5.	270°T	—	—	3/8	DEPLOYING.
11 . 30	12°S	19.78	128°E	20.08	GPS	0	0	0	0.1	5sec	230°	29°C	—	—	104	0.7	056°T	—	—	3/8	DRIFT STD BY.

CRUISE No QERA TRIALS.
R.M.C.S. MV PACIFIC CONQUEST
Date (UTC) 29-10-98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
12:00	12°S	19.74	128°E	20.2	GPS	0	0	0	0	0	0	27°C	—	—	—	4.9	235°T	—	—	5/8 cc	CIRCLEING ARRAY START.
12. 30	12°S	20.21	128°S	19.69	G	0	0	.	.	0	0	27°C	--			3.0	[illegible]	—	—	[illegible]	CIRCLEING ARRAY 500m.
13 00	12°S	20	128°E	19	G	3	030	0	0.1	—	230°	30°C	—	—	104	3.0	VARIOUS	—	—	3/8 cc	CIRCLEING ARRAY 500 M.
13 30.	12°S	20.255	128°E	19.793	G	4	030	0	0	—	—	30°C	—	—	104	0.7	VARIOUS	—	—	3/8 cc	"
14:00	12°S	19.7	128°E	19.7	G	2	010	0	0	—	—	29.5°C	—	—	104	0.3	VARIOUS	·2	050	3/8 cc	" LIGHT BULB EXPERIMENT
14:30.	12°S	19.668	128°E	19.76	G	2	010	0	0	—	—	29.5°C	—	—	104	0.5	VARIOUS	·2	050	3/8 cc	"
15:00	12°S	19.93	128°E	19.53	G	0	0	0	0	—	—	29.5°C	—	—	104	0.5	VARIOUS	·2	050	3/8 cc	"
15 30	12°S	19.85	128°E	19.33	G	0	0	0	0	—	—	29.5°C	—	—	104	0.4	[illegible]	·4	·	3/8 cc	FINISH [illegible] - SHUT DOWN [illegible]
16:00	12°S	[illegible]	128°E	19.79	G	0	0	0	0	—	—	29.5°C	—	—	104	.5	DRIFT [illegible]	—		[illegible]	DRIFT [illegible] NORTH WEST
16·30	12°S	19.79	128°E	19.76	G	0	0	0	0	—	·	29.5°C	·		105	0.7	[illegible]	—		[illegible]	"
17·00	12°S	18.77	[illegible]	[illegible]	G	·		0	·	·		28.5°C	—	·	105	8	. . .	—		[illegible]	.
17 30	12°S	[illegible]	[illegible]	[illegible]	G	0	0		·		·	27.°C		—	105	·9	DRIFT N			[illegible]	.
18 00	12°S	[illegible]	128°E	[illegible]	G	2	180	0	0	—		[illegible]	·	—	105	1.0	DRIFT NN			[illegible]	NNW
18 30	12°S	[illegible]	[illegible]	19.18	G	2	190	0	0	—		24.5	..	—	105	1.2	DRIFT NNW			[illegible]	DRIFT NNW
19:00	12°S	17.351	128°E	19.05	G	6	190	0	0	—	—	29.0	—	—	105	1.0	DRIFT NNW			1/8 cc	DRIFT NNW
19:30	12°S	16.893	128°E	18.85	G	3	224	0	0	—	—	29.0	—	—	105	1.0	DRIFT NNW			2/8 cc	DRIFT NNW
20:00	12°S	16.562	128°E	18.76	G	2	218	0	0	—	—	29.0	—	—	105	1.0	DRIFT NNW			3/8 cc	DRIFT NNW
20:30	12°S	16.128	128°E	18.709	G	2	200	0	0	—	—	28.5	—	—	105	0.6	DRIFT N NW			4/8 cc	DRIFT N NW
21:00	12°S	15.747	128°E	18.68	G	0	0	0	0	—	—	28.0	—	—	105	0.7	DRIFT NNW			4/8 cc	DRIFT N NW

CRUISE No DÉRE TRIALS
H.M.A.S. M.V. PACIFIC CONQUEST
Date (UTC) 29-10-98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	**EXAMPLE**
21 30	12°S	15.385	128°E	18.64	G	.6		0	0	—	—	—	—	—	105	.7	VARIOUS	—	—	3/8cc	DRIFTING N NW
22 00	12°S	15 07	128°E	18.66	G	0	0	0	0.2	5sec	230°	30°c	—	—	105	.8	VARIOUS			3/8cc	STAND BY DRIFTING.
22.30	12°S	14.85	128°E	18.61	G	2	110	0	0.2	5sec	230°	32°c	—	—	105	.3	VARIOUS			3/8cc	"
23:00	12°S	15.6	128°E	18.9	G	0	0	0	0.2	5sec	230°	32°c	—	—	105	6.1	170°T			3/8cc	MOVE IN TO RECOVER ULRICA ARRAY.
23.30	12°S	19 07	128°E	19 6	G	2	230	0	0.2	5sec	230°	32.5°c	—	—	104	7.	170°T			5/8cc	MOVE IN TO RECOVER ULRICA ARRAY.
24.00	12°S	19 85	128°E	19.7	G	2	220	0	0.2	5sec	230°	32.5°c	—	—	104	.7	170°T			5/8cc	
00:30	12°S	20.0	128°E	19.769	G	10	210	0-1	0.2	5sec	230°	35°c	—	—	103	.9	—			5/8.	30-10-98 UTC. RAINSQUALL APPROACHING
01.30	12°S	20.06	128°E	19.71	G	12	210	1-2	0.2	5sec	230°	35°c	—	—	103	.6	—				APPROACHING THUNDERSTORM FROM ESE.
02 00	12°S	20 06	128°E	19 6	G	4	140	2-3	0	—	—	28°c	—	—	104	.6	—			6/8	DRIFT STAND BY WAIT FOR BUOY TO SURFACE
02 30	12°S	19 91	128°E	19.4	G	15	140	3	0.3		190°	27.5°c	—	—	103	.4	—			7/8cc	DISTANT THUNDERSTORM DRIFT STAND BY.
03.30.	12°S	20.86	128°E	20.21	G	8	110	2-3	.5	7sec	190°	28.5°c	—	—	103	0.2	—	—		7/8cc	STORM IN AREA STANDBY TO GRAPPLE.
04.20.	12°S	20 08	128°E	19 7	G	4	170°	2-3	.5-1	9sec	180°	28°c	—	—	103	.7	—	—		6/8cc	GRAPPLING FOR ARRAY
05.00	12°S	20	128°E	19.0	G	3	100°	2-3	.5	9sec	180°	29.5°c	—	—	103	1.2	—	—		6/8cc	"
05.30	12°S	19.8	128°E	19 6	G	5	130°	2-3	.5-1	9sec	180°	30.5°c	—	—	104	1.0	—	—		3/8cc	"
06.00	12°S	19.7	128°E	19.8	G	5	110°	2-3	.5-1	9sec	180°	30.5°c	—	—	104	1 6	—	—		3/8cc	DRIFT STAND-BY.
07.00	12°S	19.72	128°E	19.73	G	5	120°	2-3	.5-1	9sec	180°	30.5°c	—	—	104	0.4	—	—		3/8cc	DRIFT STAND-BY WORKBOAT GRAPPLING.
07:30	12°S	19 885	128°E	19.696	G	5	120°	2-3	.5-1	9sec	180°	30.5°c	—	—	104	1.7.	—	—		3/8cc	"
08.00	12°S	19.92	128°E	19.66	G	5	140°	2-3	.5-1	9sec	180°	30°c	—	—	103	1.3	—	—		3/8cc	"
08:30	12°S	20.00	128°E	19.71	G	6	120°	2-3	.5-1	9sec	180°	30°c	—	—	103	1.2	—	—		3/8cc	"

CRUISE No DEPA TRIALS.
H.M.A.S. M.V. PACIFIC CONQUEST
Date (UTC) 30.10.98.

BRIDGE LOG

Time (UTC)	Position Lat.		Position Long.		Fix Type	Wind Speed (kn)	Wind Direction True	Sea State	Swell Height (m)	Swell Period (sec)	Swell Direction True	Air Temp °C Dry	Air Temp °C Wet	Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course T	Ship Set Speed (kn)	Ship Set Direction	Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
09.00	12°S	19.93	128°E	19.68	G	7	110	2-3	.5-1	9	180	30°	—	—	104	0.8	VARIOUS	—	—	2/8 CC	SIDE SCAN SONAR RUN
09.30	12°S	19.86	128°E	19.59	G	7	110	2-3	.5-1	9	180	29.5°C	—	—	104	0.9	"	—	—	2/8 CC	PERSONEL TRANSFERS FROM MANAWNOI.
10 00	12°S	20.39	128°E	20.37	G	7	110	2-3	.5-1	9	180	29.5°C	—	—	103	4.8	313	—	—	2/8	SIDE SCAN SONAR RUN.
10.30	12°S	19.67	128°E	19.77	G	7	100	2-3	.5-1	9	180	30°C	—	—	103	5.5	099	—	—	2/8	SONAR RUNS.
11:00	12°S	19.74	128°E	19.37	G	6	100	2-3	.5-1	9	180	29.5°C	—	—	104	4.3.	308°	—	—	2/8	"
11:30	12°S	19.73	128°E	19.35	G	8	100	2-3	.5-1	9	180°	30°C	—	—	104	4.6	120°	—	—	2/8 CC	"
12.00	12°S	19.74	128°E	19.34	G	6	090	2-3	.5-1	9	180°	30°C	—	—	104	4.1	308°	—	—	1/8	"
12:30	12°S	20.23	128°E	19.73	G	7	090	2-3	.5-1	10	180°	29.5°C	—	—	103	4.6	178°T	—	—	1/8	"
13.90	12°S	21.2	128°E	19.83	G	9	090	2-3	.5-1	10	180°	30°C	—	—	104	0.9	180°	—	—	1/8	PREPARE TO GRAPLE. FINISH SONAR.
14:30.	12°S	18.36	128°E	19.9	G	7	070	2-3	.51	10	180°	30°C	—	—	104	0.5.	—	—	—	1/8	FINISH MAIN ENG CHANGE AUX.
15:00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	050	[illegible]	[illegible]		[illegible]	[illegible]			[illegible]	0.3	[illegible]	—		[illegible]	[illegible] W.
15:30	12°S	19.11	128°E	17.70	G	7	[illegible]	2-3	[illegible]		180	30°C			105	0.7	—	—		1/8	" "
16:00	12°S	17.44	128°E	17.41	G	5	[illegible]	[illegible]	.5		[illegible]	30°C			104	.5	—	—		1/8	" WSW
16:30	12°S	[illegible]	128°E	[illegible]	G	5	070	2-3	[illegible]	[illegible]	180	30°			104	0.7	-	—		[illegible]	WSW
17.00	12°S	18.32	128°E	18.21	G	5	120	2-3	.5	10	180	30°	—	-	105	1.0	—	—		1/8	WSW
17:30	12°S	18.32	128°E	18.15	G	5	070	2-3	.5	10	180	30°	.	-	107	.5	-	—		1/8	WSW
18:00	12°S	18.11	128°E	17.98	G	10	090	2-3	.5	10	180	30°	—	—	106	.7	—	—	—	1/8	" NW
18:30	12°S	17.75	128°E	17.55	G	7	120	2-3	.5	10	180	28°	—	—	106	1.1	—	—	—	1/8	" NW
19:00	12°S	17.45	128°E	17.30	G	6	130	2-3	.5			28°			106	0.8	—	—	—	2/8	" NW

CRUISE No DFRA TRIALS 2
H.M.A.S. M/V PACIFIC CONQUEST
Date (UTC) 30-10-98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
19:30	12°S	17 18	128°E	17·22	G	6	120	2	·5	4	180	28	—	—	106	1	215	—		2/8	DRIFTING NW
2000	12°S	16·80	128°E	16·89	G	6	120	3	·5	4	180	28	—	—	105	·7	213	—		3/8	DRIFTING NW
20:30	12°S	16·54	128°E	16·71	G	4	115	3	·7	4	180	28	—	—	106	·8	245	—		3/8	DRIFTING NW
21:00	12°S	16·22	128°E	16·56	G	6	100	3	·7	4	180	28	—	—	105	·7	240	—		3/8	DRIFTING NW
21:30	12°S	15·96	128°E	16·39	G	4	090	3	·7	4	180	28	—	—	106	·8	244	·[illegible]	323	3/8	DRIFTING NW
22:00	12°S	15·67	128°E	16·28	G	5	080	3	·7	4	180	29	—	—	105	·6	262	—		3/8	DRIFTING NW
22·30.	12°S	15 39	128°E	16·13	G	7	175	2	·5-1	8	180	29·5°c	—	—	105	·6	315	NW	·5	5/8 cc	STORM TO STH. PREP FOR OCTOPUS DEPLOY.
23:00	12°S	15·41	128°E	16·10	G	12	175	3	1	8	180	30°c	—	—	106	·3	315	NW	·5	5/8 cc	STORM APPROACHING STH DEPLOYED OCTOPUS 22:47
23:30.	12°S	18 20	128°E	18·25	G	25	180	4	1·2	—	180	26°c	-	-	104	7·5	148	—		RAIN STORM	CREW TRANSFER TO MANAWANUI.
24:00	12°S	20·4	128°E	19·29	G	20	150	4-5	1·5	—	170°	26·5°c	-	-	103	2·9	135	—		RAIN STORM	PERSONEL TRANSFER TO MANAWANUI
00:30	12°S	19·68	128°E	18·86	G	18	150	4	1·5	-	150°	28·5°c	-	—	105	5·3	191	—			
00:40																					CUSTOM'S AIRCRAFT FLY OVER.
01 00	12°S	20 42	128°E	19 67	G	18	140	4	1·5-2	6	140°	27·5°c	-	—	104	3·1	137°T	—		5/8	WEATHER STEAM.
01:30	12°S	20·12	128°E	19·80	G	18	140	4	1·5-2	6	140°	30°c	—	—	103	0·9	140°T	—		5/8	GRAPLE.
01:50	12°S	20·07	128°E	19·38	G	15	140	4	1·5-2	6	140	30·5°c	—	—	104	1·8	290°T	—		4/8 cc	RECOVERED ARRAY 02:15 LAST NODE
																					ON DECK.
02:30.	12°S	19·0	128°E	19·1	G	12	140	4	1·5-2	6	140°	31°c	—	—	105	4·1	344°T	—		4/8 cc	WEATHER STEAM.
03·00	12°S	17·21	128°E	18·11	G	2·5	140	3-4	1·5	—	140°	31°c	—	—	106	4·2	330	—		4/8 cc	"
03:30.	12°S	16 01	128°E	17·22	G	0·8	140	3-4	1·15	—	140°	30°c	—	—	106	2·8	330	—		4/8 cc	"

CRUISE No DERA TRIALS.
~~H.M.A.S.~~ M.V. PACIFIC CONQUEST.
Date (UTC) 31-10-98.

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	060	6	125	7/8	EXAMPLE
04.00	12°S	15.0	128°E	16.49	G	10-12	130	3	1.2	6	130°	30.5°C	—	—	106	2.6	330°	—	—	4/8 cc	WEATHER STEAM.
04·30	12°S	13.77	128°E	15.51	G	10-12	130	3	1.2	6	130°	30.5°C	-	-	106	2.9	330°	—	—	5/8 cc	WEATHER STEAM RADAR U.S. DENG.
05.30	12°S	14.7	128°E	16.76	G	10	130	3	1.2	6	130°	30.5°C	-	-	107	2.2.	130°	—	—	5/8 cc	WEATHER STEAM.
06:00	12°S	15.5	128°E	18.6	G	10	120	3	1.2	6.8	130°	30.5°C	-	-	105	4.3.	130°	—	—	5/8 cc	"
06.30.	12°S	17.3'	128°E	20.8	G	8-10	110	3	1.2	6.8	130°	30°C	-	-	104	3.4	114°	—	—	5/8 cc	"
07.00	12°S	17.4'	128°E	21.0'	G	5-10	090	3	1-1.2	6.8	130°	29.5°C	-	-	104	5.6	282°	—	—	5/8 cc	STEAM TO OCTOPUS ARRAY POSITION.
07:35	12°S	16.07	128°E	17.3'	G	5-10	070	2-3	1-1.2	6.8	130°	30.5°C	-	-	105	5.7	293°	—		5/8 cc	APPROACH ARRAY POS.
08:00	12°S	15.339	128°E	16.023	G	5	110	2-3	1-1.2	6	130°	30°C	-	—	106	—	—	—	—	5/8 cc	PING OCTOPUS COMENCE RETRIVAL
08:05					G	5	110	2	1-1.2	6	130°		—	—	106	STATIONARY				5/8 cc	PICK UP SURFACE BUOY 1 MINS AUX POWER FAILURE
08:[illegible]	12°S	14.8	128°E	15.6'	G	5	110	2	1-1.2	6	130°	30°C	—	—	106	—	"			5/8 cc	RETRIVAL COMPLETE. OCTOPUS ON DECK.
09:00	12°S	15.96	128°E	16.98	G	5	110	2	1-1.2	6	130°	29.5°C	—	—	105	8.7	140°	—	—	5/8 cc	TRANSIT TO MANAWANUI
09.30	12°S	19.9	128°E	19.0	G	5	110	2	1-1.2	6	136°	29.5°C	—	—	104.	8.5	140°	—	—	5/8 cc	TRANSFERED FROM KIWI → BRONCO (SUE)
10:00	12°S	19.9	128°E	19.1	G	3	135	2	1-1.2	6	130°	29°C	—	—	104	4.9	292°	—		5/8 cc	BUOY TRIALS.
10:30	12°S	19.6	128°E	18.56	G	3	135	2	1	6	130°	29°C	—	—	104	N/A	N/A	—		5/8 cc	ANCHORED.
11:30.	12°S	19.62	128°E	18.54	G	4	135	2	.5-1	6	130°	29°C	—	—	104	ANCHORED.				5/8 cc	AT ~~A~~ ANCHOR.
12:00	12°S	19.63'	128°E	18.52'	G	4	135°	2	.5-.7	6	130°	29°C	—	—	104		"			5/8 cc	" "
13:00	12°S	19.64	128°E	18.53	G	4	060	2	.5	6	130°	29°C	—	—	104		"			3/8 cc	" "
13:30.	12°S	19.66	128°E	18.56	G	4	060	2	.5	6	130°	29°C	-	-	104		"			5/8 cc	" "
14:30	12°S	19.66	128°E	18.57	G	4	060	2	.2	—	130°	29°C	—	—	105		"			5/8 cc	" "

CRUISE No DERA TRIALS
~~H.M.A.S.~~ MV PACIFIC CONQUEST
Date (UTC) SUNDAY 1 NOV 98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
15:00	12°S	19.67'	128°E	18.56	G	3	060	2	·2	–	130°	29°	–	–	105	ANCHORED				5/8	AT ANCHOR
15:30	12S	19.66	128°	18.56	G	3	060	2	·2	–	130°	29°	–	–	105	ANCHORED				5/8	" "
16:00	12°S	[illegible]	[illegible]	18.56	G	1	060	1	·2		[illegible]	[illegible]	–		105		"			5/8	" "
16:30	12°S	19.60	128°E	18.56	G	1	060	1	·2	–	130°	28.5°	–	–	105		"			5/8	" "
17:00	12S	19.64	128°E	18.56	G	1	060	1	·2	–	130	28.5	–	–	105		"			5/8	" "
17 30	12°S	19.65	128°E	18.56	G	1	060	1	·2	–	130	28.5	–	–	105		"			5/8	" "
18 [illegible]		[illegible]	128°E	18.53	G	0	090	1	·1	–	130	28.5	–	–	105		"			5/8	" "
18·30	12S	19.65	128°E	18.55	G	1	020	1	·1	–	130	28.5°	–	–	105		"			5/8	" "
19·00	12°S	19.66	128°E	18.52	G	1	020	1	1	–	130	29	–	–	105		"			5/8	" "
19:30	12°S	19.64	128°E	18.55	G	11	030	1	·2	–	130	28	–	–	105		"			5/8	" "
20:00	12°S	19.65	128°E	18.55	G	11	060	1	·2	–	130	29	–	–	105		"			5/8	" "
22:30	12°S	19.57	128°E	18.51	G	20	000	3	·8	–	145	26.5	–	–	104		"			8/8	" "
23:00	12°S	19.57	128°E	18.47	G	04	180	3	·8	–	130	24.5°c	–	–	105		"				THUNDERSTORM LIGHTNING + RAIN.
23·30	12°S	19.57	128°E	18.49	G.	02	225	3	·8	6·8	130	24.5°c	–	–	104		"			5/8 cc	SHEPARD AIRCRAFT OVERHEAD
24:00	12°S	19.58'	128°E	18.51	G	04	090	1	1·2	6-8	130	25.5°c	–	–	105		"			5/8 cc	"
00:30	12°S	19.56	128°E	18.49	G	04	110	1	1·2	6·8	130	28°c	–	–	104		"			5/8 cc	ULRICA BUOY TEST DEPLOY.
01:30	12°S	19.57	128°E	18.52	G	06	200	1	1·5	6-8	130	28.5°c	–	–	105		"			5/8 cc	FREED LINE FROM PORT SHAFT.
02:00	12°S	19.55'	128°E	18.50	G	05	170	1	1·5	6-8	130	28.5°c	–	–	104		"			5/8 cc	AT ANCHOR.
02:30	12°S	18.87	128°E	18.29	G	05	180	1	1·5	6-8	135	28.5°c	–	–	104	2.6	326			5/8 cc	WEATHER STEAM.

CRUISE No DERA TRIALS.
~~H.M.A.S.~~ M.V. PACIFIC CONQUEST.
Date (UTC) 01-11-98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eights)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
03:00	12°S	17.89	128°E	17.14	G	6	135	2-3	1.5	8	130°	29°c	—	—	106.	3.1	114	—	—	5/8 cc	WEATHER STREAM PREP ULRICA FOR DEPLOY.
03:30	12°S	19.00	128°E	19.4	G	6	130°	2	[illegible]	8	130°	29.5°c	–	–	105	6.5	114	—	—	5/8 cc	PROCEED TO DEPLOY SITE.
03:19.	12°S	19.437	128°E	22.52	G	4	090	1	.5	—	130°	—	–	–	103	1	360	—	—	5/8 cc	START DEPLOY OF ULRICA Co N. Dp.103m, Sea .5-1
04:35	12°S	19.250	128°E	22.68	G	4	090	1	.5	–	135°	–	—	–	103	1	360	—	—	5/8 cc	FINISH ULRICA DEPLOY
05:00	12°S	[illegible].63	128°E	24.57	G	3	110	1	.5	–	130°	30.5°c	—	—	103	—	—	—	—	5/8 cc	DRIFT STAND-BY EAST OF SITE.
65:30	12°S	18.61	128°E	24.54	G	3	200	1	.5	–	130°	31.5°c	—	—	103	0.3	—	—	—	5/8 cc	DRIFT STAND BY EAST OF SITE.
06.30	12°S	15.53	128°E	24.3	G	2	180	1	.2-.5	–	130°	31.5°c	–	–	103	0.3	—	.3	NW	4/8 cc	DRIFT STAND BY EAST OF SITE.
07.00	12°S	18.3	128°E	24.19	G	0	0	1	.2-.5	—	130°	31°c	–	—	103	0.7	—	.7	NW	4/8 cc	BIG BALL HYDROPHONE DEPLOYED
07:30	12°S	18.20	128°E	23.91	G	0	0	0	.2	–	130°	30.5°c	–	—	103	0.9	–	.5	NW	3/8 cc	AMBIENT EXPERIMENT N/E OF ARRAY.
08:30	12°S	18.10	128°E	20.6	G	0	0	0	.1	–	130°	30°c	–	–	103	9	—	—	—	2/8 cc	RETURN TO MANAUNUI ~~REK OF SUG~~
09.00	12°S	19.75	128°E	18.60	G	0	0	0	1-.2	–	130°	30°c	—	–	105	.7	—	.5	NW	1/8 cc	S.V.P. DEPLOYED.
09:30	12°S	19.56	128°E	18.29	G	0	0	0	.2	—	130°	29.5°c	–	–	104	.8	—	.5	NNW	2/8 cc	STANDBY DRIFT TRIAL'S SITE.
10:00	12°S	19.74	128°E	18.52	G	0	0	0	.2	—	130°	29.5°c	—	—	104	.5	–	.5	NW	1/8 cc	"
10:30	12°S	19.8	128°E	18.55	G	0	0	0	.2	–	130°	29	—	—	104	2.9	148	—	—	1/8 cc	"
11:00.	12°S	19.8	128°E	18.4	G	0	0	0	.2	–	130°	29	—	—	104	0.5	130°	—	—	1/8 cc	CREW TRANSFER FROM KIWI TO BOFFIN.
11:30	12°S	18.63	128°E	17.86	G	0	0	0	.2	–	130°	29	–	–	104	8.2	320°	.5	NW	1/8 cc	TRANSIT TO ANCHOR POSITION.
12:00	12°S	[illegible].5	128°E	15.29	G	0	0	0	.2	–	130°	29.	–	–	106	7.2	310°	.5	NW	1/8 cc	"
12:30.	12°S	14.10	128°E	13.15	G	4	300	1	.2	–	130°	29.	–	—	108	8.1	310°	.5	NW	1/8 cc	"
13.00	12°S	11.67	128°E	07.6	G	2	060	1	.2	—	130°	29	–	—	109	—	—			1/8 cc	ANCHORED

CRUISE No DERA TRIALS.
H.M.A.S. M.V. PACIFIC CONQUEST.
Date (UTC) 01-11-98.

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
14:30	12°S	11.69'	128°E	09.61	G	5	270	1	·4	—	130°	29°C	—	—	110	—	—	—	—	CLEAR	AT ANCHOR.
15:00	12°S	11.67	128°E	09.61	G	5	310	1	·4	·	130	29°C	-	-	110	—	—	—	—	"	"
15·30	12°S	11.68'	128°E	09.61	G	5	300	1	·4	-	130°	29°C	-	-	110	-	-	—	—	"	"
16.00	12°S	11.68	128°E	09.61	G	5	300	1	4	-	130°	29°C	-	-	110	-	-	—	—	"	"
16 30	12°S	11.68	128°E	09.61	G	5	300	1	·4	-	130°	29°C	-	-	110	-	—	—	—	"	"
17·00	12°S	11.66	128°E	09.60	G	5	300	1	4	—	130°	29°C	—	—	110	—	—	—	—	"	"
17 30	12°S	11.68	128°E	09.63	G	3	300	1	·4	-	130°	29°C	-	—	110	-	—	—	—	"	"
18·00	12°S	11.67	128°E	09.59	G	3	290	1	·4	—	130°	29°	—	—	110	—	—	—	—	"	"
18·30	12°S	11.66	128°E	09.63	G	3	290°	1	·4	—	130°	29°	—	—	110	—	—	—	—	"	"
19·00	12°S	11.67	128°E	09.61	G	7	290°	1	·4	—	130°	29°	—	—	110	—	—	—	—	"	"
19:30	12°S	11.65	128°E	09.61	G	7	290°	1	·4	—	130°	29°	—	—	110	—	—	—	—	"	"
20:00	12°S	11.65	128°E	09.60	G	7	280°	2	·5	—	130°	29°	—	—	110	—	—	—	—	"	"
20:30	12°S	11.65	128°E	09.58	G	7	280°	1	·4	—	130°	29°	—	—	110	—	—	—	—	"	"
21 ·00	12°S	12.2	128°E	10.3'	G	7	280°	1	·4	-	130°	29.5°C	—	-	109	8.1	130°	—	—	CLEAR	20 50 START ANCHOR RETRIEVE 21.00 UNDERWAY
22:00.	12°S	17.35	128°E	16.44	G	7	280°	1	·5	-	130°	29.5°C	—	—	105	9.0	133°	—	—	·	TRANSIT TO TRIALS SITE
22:30	12°S	19.58	128°E	18.42	G	9	280°	1-2	-	-	—	30°C	-	-	104	0.5	327	·5	NW	"	TRANSFER 3 PERSONEL TO MANAWNUI
23:00	12°S	19.1	128°E	18.34	G	8	280°	1-2	·5	-	—	30.5°C	—	-	104	2.5	116	-	—	CLEAR	SLOW STEAM → MANAWNUI.
23.00	12°S	19.8	128°E	18.7	G	8	280	1-2	·5	-	280°	30.2°C	—	—	104	·9	-	·5	N	"	DRIFT STAND BY MANAWNUI.
24 00.	12°S	19.6	128°E	18.8	G	8	280	1-2	·5	-	280	30.5°C	-	-	104	9.2	004	—	—	"	TRANSIT TO JERKA SITE.

CRUISE No DERA TRIAL'S
~~H.M.A.S.~~ M.V. PACIFIC CONQUEST
Date (UTC) 02-10-98.

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
00:30	12°S	19.07	128°E	22.9	G	05	280°	2	·5	[illegible]	280°	30.5°c	—	—	102	·7	280°	—	—	1/8 cc	START LIGHT BULB EXPERIMENT.
01:15	12°S	18.99	128°E	22.6	6	06	280°	2	·5	—	280°	31.5°c	—	—	103.	·6	280°	—	—	3/8 cc	LIGHT BULB + CIRCLE.
02:00	12°S	18.96	128°E	22.6	G	05	235	2	·5	—	250°	31.7°c	—	—	103	1·1	353	—	—	3/8 cc	STANDBY FOR BULB SMASHING.
02 30	12°S	18.93	128°E	22.6	G	06	180	2	·5	—	250°	32°c	—	—	102	·4	091°	—	—	3/8 cc	"
03:00	12°S	18.8	128°E	22.78	G	06	180	2	·5	—	250°	32°c	—	—	102	·8	091°	—	—	3/8 cc	"
03:30	12°S	19.24	128°E	22.7	G	04	270	1	·2	—	280°	34°c	—	—	103	·6	133	—	—	5/8 cc	PING ULRICA BUOY RELEASE 03:35.
03:40	12°S	19.32	128°E	22.72	G	04	130	1	·2	—	130	31°c.	—	—	103	·7	140	—	—	SQUALL	BUOY SURFACED. 03·50 BUOY ON DECK
04:00	12°S	19.34	128°E	22.73	G	04	130	1	·2	—	130	31°c	—	—	103	·5	190	—	—	APP SQUALL	RECOVERING ULRICA.
04:25	12°S	19.32	128°E	22.72	G	25	060	4	·2	·	130°	29°c	—	—	103	2.	006	—	—	SQUALL	ARRAY RECOVERED
05:00	12°S	18.67	128°E	20.82	G	18	050	4	1-1.2	—	060°	28.5°c	—	—	103	2	250°	—	—	5/8 cc	WEATHER STEAM.
05:30	12°S	19.04	128°E	22.52	G	18	050	4	1-1.2	—	060	28.5°	—	—	104	2.3	248°	—	—	5/8	" "
06:00	12°S	19.29	128°E	20.66	G	15	050	3	1-1.2	—	060	28.5	—	—	104	1·4	121°	—	—	5/8	" "
06:30	12°S	19.48	128°E	21.76	G	7	040	3	1-1.2	5	060	29	—	—	104	1·8	060	—	—	4/8 cc	VLA DEPLOY TEST OK
07.00	12°S	19.5	128°E	22.27	G	3	030	2-3	1.2	5	090	29.	—	—	104	1·5	094	—	—	4/8 cc	STAND BY STEAM INTO WEATHER.
07:30	12°S	19.6	128°E	22.9	G	3	030	2-3	1.2	5	090	29.5°c	—	—	103	·8	090	—	—	4/8 cc	"
08:30	12°S	19.1	128°E	23.06	G	3	040	2	1-1.2	5	090	29.5°c	—	—	103	3·3	270	—	—	CLEAR	"
09:00	12°S	21.3	128°E	20.7	G	3	040	2	1-1.2	5	090	29.5°c	—	—	104	1·2	090	—		"	ON SITE FOR ULRICA VLA 0902-0905 DEP
09:30	12°S	21.27	128°E	19.65	G	5	045	2	1-1.2	5	080	29.5°c	—	—	104	3·2	270	—	—	1/8 cc	WEATHER STEAM.
10:00	12°S	21.20	128°E	19.1	G	3	030	2	1-1.1	5	080		—	—	103	1·2	090	—	—	1/8 cc	"

CRUISE No DERA TRIALS.
~~H.M.A.S.~~ M.V. PACIFIC CONQUEST.
Date (UTC) 02-11-98.

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
10:30.																					
11:00	12°S	21·14	128°E	21·22	G	03	045	2	·81	5	060	29°c	—	—	102	2·2	090	—	—	3/8 cc	STAND-BY TO DEPLOY ULRICA HLA.
11·30	12°S	21 072	128°E	20·21	G	05	020	2	·8	5	060	29·5°c	—	—	103	3·3	090	—	—	3/8 cc	"
12:10	12°S	21·14	128°E	18·03	G	05	020	2	·5	5	060	29°c	—	—	103	3·0	090	—	—	3/8 cc	"
12:40	12°S	20·95	128°E	19·89	G	00	—	1-2	·2·5	5	060	29°c	—	—	103	1·3	090	—	—	1/8 cc	"
13·00	12°S	20·87	128°E	20·41	G	03	010	1	·2	5	070	28·5°c	—	—	103	·7	059	—	—	1/8 cc	"
13·30	12°S	20·89	128°E	20·89	G	03	010	1	·2	5	070	29°c	—	—	103	1·1	090	—	—	1/8 cc	13·20 NODE IN WATER ULRICA HLA ③ DEPLOY.
14:00	12°S	21·14	128°E	19·94	G	05	000	1	·2	5	070	29°c	—	—	104	9·5	292	—	—	1/8 cc	TRANSIT TO MANAWAN FOR CREW TRANSFER.
14:30	12°S	20·8	128°E	19·3	G	05	000	1	·2	—	070	29°c	—	—	104	·5	—	·7	130	1/8 cc	DRIFT STANDBY.
15·00	12°S	20·98	128°E	19·5	G	·5	0	1	·2	—	070	29°c	—	—	105	·6	—	·6	130	1/8 cc	" "
15·30	12°S	21·70	128°E	19·78	G	·5	0	1	·2	—	070	29°c	—	—	104	1·4	—	1·4	130	1/8 cc	" "
16·00	12°S	21·43	128°E	20·09	G	·5	0	1	·2	—	070	29°c	—	—	104	1·0	—	1	130	1/8 cc	" "
16·30	12°S	21·78	128°E	20·53	G	·5	0	1	·1	—	070	29°	—	—	104	1·4	—	1·4	130	1/8	" "
17·00	12°S	22·13	128°E	20·59	G	·5	0	1	·1	—	070	29°	—	—	104	1·4	—	—	130	1/8	" "
17·30	12°S	22 50	128°E	21·21	G	·5	0	1	·1	—	070	29°	—	—	103	0·9	—	—	130	1/8	" "
18·00	12°S	22·84	128°E	21·52	G	·5	0	1	·1	—	070	29°c	—	—	103	1·4	—	—	130	1/8	" "
18·30	12°S	23·07	128°E	21·75	G	·5	0	1	·1	—	070	28·5	—	—	102	·6	—	—	130	1/8	" "
19:00	12°S	23 42	128°E	21 90	G	·4	210	1	·2	5	090	28·5	—	—	103	·6	—	·5	137	1/8	" "
19:30	12°S	23·63	128°E	21·95	G	4	180	1	·2	5	060	28·5	—	—	102	·5	010	1	131	1/8	" "

CRUISE No DÈRO TRIALS
H.M.A.S. M.V. PACIFIC CONQUEST
Date (UTC) 02-11-98 - 03/11/98.

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec.)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
2000	12°S	23·76	128°E	21·85	G	5		1	·2	5	060	29	—	—	102	·4	—	1	159	1/8	DRIFT STANDBY
2030	12°S	23·88	128°E	21·72	G	6		1	·2	5	035	29	—	—	102	·4	—	—	338	2/8	" "
2100	12°S	24·01	128°E	21·52	G	6		1	·2	5	040	29	—	—	102	·5	—	—	—	1/8	" "
2130	12°S	24·02	128°E	21·29	G	7		1	·2	5	035	30	—	—	102	·6	—	·5	205	1/8	" "
2200	12°S	23·93	128°E	20·98	G	7		1	·2	5	035	31	—	—	102	·6	—			1/8	" "
2230	12°S	23·99	128°E	20·69	G	5		1	·2	4	030	31·5	—	—	102	·6	—	·7	270	1/8	" "
23·00	12°S	23·60	128°E	20·41	G	3	270	1	·2	4	030	32·5°C	—	—	102	·7	—	·5	N	1/8 CL	" "
23·30	12°S	23·34	128°E	20·02	G	3	270	1	·2	4	030	33·5°C	—	—	102	·6	—	·5		1/8 CL	" "
24:00	12°S	22·74	128°E	18·61	G	3	270	1	·2	—	—	32·5°C	—	—	102	6·7	353°T	—	—	1/8 CL	TRANSIT TO BOTTOM POSITION
24:30.	12°S	19·54	128°E	18·07	G	—	—	0	·2	4	030	32·7°C	—	—	102	·7	—	·5	N	2/8 CL	DRIFT STANDBY PM TRANSFER -> BOTTOM
00:00	12°S	19·27	128°E	17·97	G	—	—	0	·2	4	030	34°C	—	—	103	·4	—	·5	N	2/8 CL	DRIFT SYP DUNKED @10:30 CST.
01:30	12°S	19·08	128°E	17·87	G	2	270	0	·2	—	030	35°C	—	—	104	·2	—	·5	N	1/8 CL	DRIFT STAND·BY.
02:00	12°S	19·04	128°E	17·73	G	0	0	0	·2	—	030	34·5°C	—	—	104	·3	—	·2	N	1/8 CL	"
02:25	12°S	19·09	128°E	18·11	G.	3	180	0	·2	-	030	33·7°C	—	—	104	·3	—	·2	ESE	1/8 CL	"
03:05	12°S	19·29	128°E	20·08	G	7	115	0	·1	4	020	33°C	—	—	104	9·0	125	—	—	1/8 CL	TRANSIT TO OCTOPUS DEPLOY POSITION.
03:30.	12°S	19·6	128°E	20·2	G	7	115	0	[illegible]	4	020	33°C	—	—	104	1·3	116	—	—	1/8 CL	13·21 DEPLOY OCTOPUS 12°20·010'S 128°21·006'E
04:00.	12°S	16·10	128°E	21·28	G	3	090	0	·1	—	—	32°C	—	—	103	1	—	—	—	1/8 CL	STANDBY DRIFT. ½ NM NTH OCTOPUS
04·30	12°S	16·36	128°E	21·74	G	3	090	0	·1	—	—	33°C	—	—	103	1·1	—	1	ESE	1/8 CL	"
05:05.	12°S	16·67	128°E	22·31	G	2	090	0	·1	—	—	33°C	—	—	104	1	—	1	ESE	1/8 CL	"

CRUISE No DERA TRIALS.
~~H.M.A.S.~~ M.V. PACIFIC CONQUEST.
Date (UTC) 03/11/98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
05·45.	12°S	17·08	128°E	22·7	G	03	100	0	·2	–	090	33°c	—	—	104	·9	—	·5	125	1/8 cc	14.13-14.31 SVP DUNKED DRIFT STAND BY.
06:00	12°S	17·2	128°E	22·9	G	02	100	0	·2	–	090	33°c	—	—	104	·8	—	·5	125	1/8 cc	STAND BY FOR SILENT PERIOD. 06.08 SILENT.
06:45	12°S	17·68	128°E	23·5	G	02	100	0	·1	–	090	33°c	–	–	103	1·0	–	·5	125	1/8 cc	AMBIENT NOISE EXP FINISH 16.13 START UP.
07:00	12°S	18·08	128°E	24·46	G	02	100	0	·1	–	090	32·4°c	–	—	104	8·3	–	–	–	1/8 cc	TRANSIT TO OCTOPUS POSITION.
07·30	12°S	20·07	128°E	21·03	G	03	090	0	·1	–	090	32°c	–	–	104	0·3	–	·5	125	1/8 cc	PINGED OCTOPUS RELEASE BUOY ON SURFACE COMENC
08·00	12°S	20·04	128°E	21·10	G	0	0	0	·1	—	090	32·5°c	—	–	105	0·7	–	·5	100	1/8 cc	RECOVERY. COMENCE WINCHING UP.
08:30.	12°S	20·00	128°E	20·47	G	2	030	0	·2	–	200	32·5°c	–	–	105	0·6	–	·5	090	1/8 cc	08 OU ON DECK. SPV EXP.
09:10	12°S	20·94	128°E	20·73	G	2	–	0	·2	–	200	32	–	–	103	1·2	–	·5	270	1/8 cc	VLA - HLA SITE NOISE EXPERIMENT.
09:30	12°S	20·83	128°E	20·55	G	3	–	0	·2	-	200	31·5°c	–	–	104	·7	—	·5	300	1/8 cc	RIB NOISE RUN OVER VLA.
10·25	12°S	20·98	128°E	20·91	G	3	035	0	·2	–	200	30·9°c	–	—	103	1·3	–	·5	330	1/8 cc	LIGHT BULB EXPERIMENT.
11.00	12°S	20·578	128°E	20·88	G	0	0	0	·2	—	200	30°c	–	–	103	1·2	–	·5	330	1/8 cc	"
11.30	12°S	20 343	128°E	24·38	G	0	0	0	·2	–	200	30°c	—	—	101	1·0	—	—		1/8 cc	STAND BY DRIFT WHILE "BUFFIN" DOES
12.00.	12°S	19·71	128°E	24·1	G	3	000	0	·2	–	200	30°c	–	–	102	1·5	—	1·5	330	1/8 cc	NOISE PROJECTOR RUNS.
12:30.	12°S	19·12	128°E	23·56	G	3	045	0	·1	–	—	30°c	–	–	103	1·2	–	1·5	330	1/8 cc	DRIFT STAND·BY
13.00	12°S	18·78	128°E	23·18	G	3	045	0	·1	–	–	30°c	–	–	103	1·0	–	1·3	310	1/8 cc	"
13 30	12°S	15·45	128°E	28·02	G	5	045	0	·1	–	–	29·5°c	-	–	102	0·5.		1	310	1/8 cc	PREP. FOR ATTEMPT FINISH LIGHT BULB'S
14·00	12°S	20·57	128°E	20·95	G	3	045	0	·1	–	–		–	–	104	0·7	–	–	–	1/8 cc	HLA - VLA ULRICA. FIRST BULB NTH POS
14 30	12°S	20·67	128°E	20·67	G	3	050	0	·11	–	-		–	–	103.	0·7	–	-	–	1/8 cc	HLA - VLA ULRICA LIGHT BULB EXP.
15:00.	12°S	2·05	128°E	20·7	G	5.	050	0	·1	–	–		–	–	103.	03	-	–	–	1/8 cc	LAST BULB FOR NIGHT.

CRUISE No DERA TRIALS.
H.M.A.S. MV PACIFIC CONQUEST
Date (UTC) 03-10-98.

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
15 30.	12°S	19·68	128°E	21·26	G	4	330	1	·1	–	–	29·5	–	–	103	9·0	016°			1/8	STEAM TO DRIFT POSN.
16·00	12°S	19·52	128°E	21·66	G	4	330	1	·1	–	–	29·5	–	–	103	·5	–	·4	SW	1/8	DRIFTING S/SW
16·30	12°S	19·73	128°E	22·00	G	3	330	1	·1	–	–	29·5	–	–	103	1·0	–	1·0	SW	1/8	" "
17·00	12°S	20·08	128°E	22·55	G	3	330	1	·1	–	–	29·5	–	–	103	1·3	–	1·3	SW	1/8	" "
17·30	12°S	20·38	128°E	22·94	G	3	330	1	·1	–	–	29·5	–	–	103	·8	–	·8	SW	1/8 cc	" "
18·00	12°S	20·65	128°E	23·38	G	1	330	1	·1	–	–	29·5	–	–	103	1·3	–	1·3	SW	1/8	" "
18·30	12°S	20·94	128°E	23·03	G	1	330	1	·1	–	–	29·5	–	–	102	1·0	–	1·0	SW	1/8	" "
19·00	12°S	21·24	128°E	24·27	G	3	330	1	·1	–	–	29·5	–	–	103	·8	–	1·1	120	1/8	" "
1930	12°S	21·39	128°E	24·52	G	4	320	1	·1	–	–	29·5	–	–	103	·6	–	·6	120	1/8	" "
2000	12°S	21·52	128°E	24·63	G	5	320	1	·1	–	–	29·5	–	–	102	·5	–	·6	170	1/8	" "
2030	12°S	21·56	128°E	24·64	G	4	300	1	·1	–	–	29·5	–	–	102	·1	–	·1	–	1/8	" "
2100	12°S	21·44	128°E	24·45	G	3	320	1	·1	–	–	29·5	–	–	102	·8	–	–	320	1/8	" "
2130	12°S	21·33	128°E	24·25	G	5	330	1	·1	–	–	29·5	–	–	102	·6	–	–	320	1/8	" "
22:00	12°S	20·88	128°E	21·19	G	0	0	0	·1	–	–	30°C	–	–	103	·8	–	·5	320	1/8 cc	POSITION FOR PING OF HLA RELEASE
22:30	12°S	21·71	128°E	20·81	G	0	0	0	·1	–	–	30°C	–	–	103	1·2	–	·5	090	1/8 cc	POSITION PINGING VLA. RELEASE.
23·00	12°S	20·17	128°E	19·20	G	0	0	0	·1	–	090	30·5°C	–	–	103	1·1	–	·5	300	1/8 cc	TRANSFER SUE TO BOFFAN
23·30	12°S	20·99	128°E	19·20	G	0	0	0	·1	–	090	31·2°C	–	–	103	3·3	115°	–	–	CLEAR	TRANSIT TO ULRICA ARRAY POSITION.
24·00	12°S	20·25	128°E	20·6	G	0	0	0	·1	–	100	31·7°C	–	–	102	2·8	079°	–	–	CLEAR	"
24:30.	12°S	20·76	128°E	20·83	G	0	0	0	·1	–	100	33·5°C	–	–	102	1·3	–	·5	310	"	LAUNCH RIB TO AID ULRICA RECOVERY

CRUISE No DERA TRIAL'S
H.M.A.S. M.V PACIFIC CONQUEST
Date (UTC) 04-11-98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec.)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
01:00	12°S	21·199	128°E	2077	G	0	0	0	·1	–	090	32·5°c	–	—	102	1·4	—	–	–	CLEAR	RELEASE FOR [illegible] DECK.
01:30	12°S	20·78	128°E	20·88	G	0	10	0	·1	–	090	32·5°c	—	–	102	0 2	–	–	–	0/8 cc	RECOVERY OF HLA UNDERWAY.
02 00	12°S	20·60	128°E	20·71	G	3	090	0	·1	4·5	090	32·5°c	—	–	102	0 7	–	·7	270	2/8 cc	FINISH RECOVERY OF VLA-HLA ARRAY'S.
02:30	12°S	20·45	128°E	20·0	G	4	090	0	·1	4·5	090	33°c	–	–	102	6·0	270	—	–	2/8 cc	TRANSIT TO OBS ARRAY SURFACE BUOY.
03:00	12°S	20·06	128°E	18·62	G	4	130	0	·1	4·5	090	33°c	–	–	103	6·7	—	·5	090	1/8 cc	ON STATION OBS SURFACE BUOY.
04.00	12°S	20·32	128°E	18·10	G	4	130	0	1	4·5	090	34·4°c	–	–	103	1·4	180	–	–	1/8 cc	PREPARE VESSEL FOR OBS BUOY RECOVERY
04·30	12°S	20·123	128°E	18·64	G	"	130	0	·2	4·5	090.	35°c	–	–	104	1·3	900	–	–	1/8 cc	IN POSITION TO PICKUP OBS SURFACE BUOY
05·07	12°S	20·06	128°E	18·59	G	3	090	0	·2	4·5	090.	34°c	-	–	104	—	—	–	–	3/8 cc	OBS SURFACE BUOY ON DECK.
05·30	12°S	20·077	128°E	18·565	G.	3	090	0	·2	4·5	080	34·5°c	–	–	105	—	—	-	–	2/8 cc	ATTACHED TO OBS ARRAY SURFACE LINE.
06:00	12°S	20·076	128°E	18·569	G	2	090	0	·2	4·5	080	33°c	–	–	105	–	—	–	–	3/8 cc	"
06·30	12°S	20·33	128°E	18·63	G	5	090	0	·2	4·5	060	32·8°c	—	–	105	5	141	–	–	3/8 cc	DELETE BUOY GO TO STAND BY.
07.00.	12°S	20·65	128°E	19·25	G	0	10	0	·2	4·5	080	32·8°c	–	–	105	–	–	·8	135	3/8 cc	START SONAR RUNS ON OBS ARRAY.
07·30	12°S	19·83	128°E	18·11	G	6	120	0	·2	[illegible]	090	32°c	–	–	106	3	130	–	–	3/8 cc	SONAR RUNS
08:00	12°S	20·01	128°E	18·57	G	2	100	0	·2	4·5	090	31·8°c	—	—	105	2·4	320	–	–	3/8 cc	"
08.30.	12°S	20·53	128°E	18·9	G	4	180	0	·2	4·5	090	31·3°c	–	—	106	6·4	250	–	–	4/8 cc	"
09:00	12°S	20·48	128°E	18·50	G	4	156	0	·2	4·5	090	31·7°c	–	—	106	3·0	200	-	–	4/8 cc	"
09.30	12°S	19·68	128°E	18·79	G	0	0	0	·2	4·5	090	30·7°c	–	–	105	6	052	-	–	3/8 cc	FINISH SONAR TRANSIT TO KIWI.
10:00	12°S	19·65	128°E	18·87	G	0	10	0	·3	4·5	090	30°c	–	–	105	0	0	–	–	4/8 cc	RAFT UP TO PORT SIDE "MANAWANUI."
13:00	12°S	19·67	128°E	18·80	G	0	0	0	·3	4·5	090	29·7°c	—	–	105	0	0	–	–	4/8 cc	ALONGSIDE KIWI.

CRUISE No DERA TRIALS.
H.M.A.S. MJ. PACIFIC CONQUEST
Date (UTC) 04-11-98.-05|11|98

BRIDGE LOG

Time (UTC)	Position Lat.		Position Long.		Fix Type	Wind Speed (kn)	Wind Direct True	Sea State	Swell Height (m)	Swell Period (sec.)	Swell Direction True	Air Temp °C Dry	Air Temp °C Wet	Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set Speed (kn)	Ship Set Direct	Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	**EXAMPLE**
14.30.	12°S	19.67	128°E	18.86	G	0	0	0	·3	5	090	28.5°C	—	—	105	—	—	—	—	1/8 cc	RAFTED WIT ALONGSIDE MANAWANUI.
15·00	12°S	19.66	128°E	18.88	G	0	0	0	.3	5	090	28·0	—	—	105	—	—	—	—	1/8	"
15 30	12°S	19.65	128°E	18.90	G	0	0	0	·3	5	090	28	—	—	105	—	—	—	—	1/8	"
16·00	12°S	19.65	128°E	1892	G	0	0	0	·3	5	090	28	—	—	105	—	—	—	—	1/8	"
16·30	12°S	19.65	128°E	18.92	G	0	0	0	·3	5	090	28·5	—	—	105	—	—	—	—	1/8	"
17·00	12°S	1965	128°E	18.95	G	0	0	0	·3	5	090	28·5	—	—	105	—	—	—	—	1/8	"
17·30	12°S	19.64	128°E	18.96	G	0	0	0	·3	5	090	28·5	—	—	105	—	—	—	—	1/8 cc	"
2000	12°S	19.65	128°E	18.96	G	0	0	0	·3	5	090	28.5	—	—	105	—	—	—	—	1/8	"
2030	12°S	19.65	128°E	18.97	G	0	0	0	·3	5	090	28·5	—	—	105	—	—	—	—	1/8	"
2100	12°S	19.65	128°E	18.95	G	0	0	0	·3	5	090	28.5	—	—	105	—	—	—	—	1/8	AFT LINE PARTED LET GO ALL LINES AND
2130	12°S	19.65	128°E	18.97	G	0	0	0	·3	5	090	28.5	—	—	105	—	—	—	—	1/8	DEPART FROM MANAWANUI.
2100.	12°S	15.76	128°E	18.46	G	0	0	0	·3	5	090	28.5	—	—	105	—	—	—	—	1/8	"
21·30	12°S	13.94	128°E	18.22	G	4	155	0	·3	5	050	29.7°C	—	—	107	5.8	350	—	—	0/8 cc	LOW STEAM TO NORTH OF TRIALS SITE
22·30.	12°S	10.9	128°E	18.7	G	5	175	0-1	·3	5	050	29.5°C	—	—	105	2.5	180	—	—	5/8 cc	NORTH-SOUTH STAND BY STEAM.
23·00	12°S	11.6	128°E	18.7	G	5	145	0-1	·3	5	050	29.7°C	—	—	104	3·0	250	—	—	5/8 cc	NORTH-SOUTH STEAM PREP. ULRICA.
24·00	12°S	09.5	128°E	15.96	G	5	145	0-1	·3	5	050	30.5°C	—	—	105	3·6	269	—	—	5/8 cc	PRE-POSITION FOR HLA DEPLOYMENT.
24:30	12°S	10.78	128°E	15.[illegible]	G	6	180	0-1	·3	5	050	30°C	—	—	105	·5	150	—	—	5/8 cc	DEPLOY HLA START 24:31, 24:36 FIRST
01:00	12°S	10.81	128°E	15.13	G	5	230	0-1	·1	6	230	30°C	—	—	105	1·4	—	105	330	5/8 cc	WT IN WATER, 10:14
	START POS: 12°	10.781 S	128°	15.171 °E																	FINISH DEPLOYMENT

FINISH POS: 12° 10.862 S 128° 15.204 'E DEPTH 105 m.
AVERAGE SPD. 1 knot.

CRUISE No DERA TRIALS
~~H.M.A.S.~~ PACIFIC CONQUEST
Date (UTC) 05/11/98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	**32S**	**29.3**	**153E**	**18.6**	**G**	**12**	**123**	**2**	**3**	**10**	**108**	**25.6**	**24.1**	**18.6**	**1084**	**13.1**	**080**	**6**	**125**	**7/8**	**EXAMPLE**
01:30	12°S	10.65	128°E	14.78	G	16	SE	3	·3	CONFUSED STATE.		31.5°c	—	—	105	2.2	—	2	330	5/8 cc	DEPLOY OCTOPUS. STORM APPROACHING
DEPLOYED OCTOPUS IN POS 12° 10.708'S 128° 15.006' E. @ 10·57 EST.																					10KM.
01:45	12°S	10.48	128°E	14.97	G	30+	SE	4	·3	CONFUSED			—	—	105	4.3	125°	—	—	SQUALLS	WEATHER STEAM.
02 00	12°S	10.9	128°E	15.7	G.	35	125°	6	·5	~~125~~	125°		—	—	104	3 3	125°	—	—	8/8 RAIN	WEATHER STEAM.
02·30	12°S	11.41	128°E	17.05	G	31	125°	5	6		125°		—	—	105	3.3	125°	—	—	5/8	WEATHER STEAM.
03:00	12°S	12.57	128°E	16.29	G	24	125	5	.5		125°	27°c	—	—	104	3.3	125	—	—	3/8	″ ″
03 35	12°S	13.16	128°E	18.7	G	20	125	5	0.25	10.	125°	26.9°c	—	—	103	5.4	330	-	—	5/8 cc	″ ″
04:00	12°S	11.63	128°E	17.47	G	18	125	5	0.53	10	125°	27.5°c	—	—	106	5.1	330	-	—	5/8 cc	″ ″
04:30	12°S	09.80	128°E	16.23	C	18	125	5	0.53	10	125°	29°c	—	-	105	4.5	330	-	-	5/8 cc	″ ″
04:45	12°S	08.75	128°E	15.51	G	18	125	5	0.63	10	125°	29°c	-	—	105	7.6	330	-	-	5/8 cc	INCREASE SPD
04:55.	12°S	07.76	128°E	14.98	G.	15	125	4	0.5	″	″	29°c	-	—	″	4.3	330	-	—	″	REDUCE SPD.
05:30	12°S	07.75	128°E	14.69	G	10	125	4	0.5	″	″	29°c	—	—	107	6.5	165	—	—	″	RUN IN TOWARDS ARRAY (LIGHT BULBS)
06:00	12°S	10.5	128°E	15.47	G	12	125	4	0.5	″	″	29°c	—	—	107	3.4	165	-	-	5/8 cc	POSITION FOR LIGHT BULBS.
06:30	12°S	10.61	128°E	15.17	G	12	125	4	0.5	″	″	29.5	—	—	106	·5	315	—	—	5/8 cc	LIGHT BULB EXPERIMENT
07:00	12°S	11.085	128°E	15.270	G	8	125	3	0.5	″	″	30°c	—	—	107	·5	130	—	—	5/8 cc	″
07:15.	12°S	11.002	128°E	14.877	G	10	125	3	0.5	″	125°	30°c	—	—	107	4.7	354	—	-	5/8 cc	″
07:20	12°S	10.51	128°E	14.898	G	10	110	3	0.5	10	125°	30°c	—	—	107	4 8	10	-	-	5/8 cc	″
07:30	12°S	10.61	128°E	15.166	G	10	080	3	0.5	10	125°	30°c	-	—	107	·6	—	·5	220	5/8 cc	″.
07·42.	12°S	10.74	128°E	15.40	G	10	090	3	0.5	10	125°	30°c	—	—	107	·6	-	·5	200	5/8 cc	LIGHT BULBS FINISHED

PING ACKAN TURN OF,

CRUISE No DERA TRIALS.
~~H.M.A.S.~~ M.V. PACIFIC CONQUEST
Date (UTC) 05/11/98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	**EXAMPLE**
06:00	12°S	15.505	128°E	17.796	G	10	090	2-3	0.53	10	130	30°C	–	–	106	7.5	160	–	–	3/8 CL	TRANSIT TO TRIALS SITE TO DEPLOY ULRICA.
09.00	12°S	18.94	128°E	19.82	G	12	080	2-3	0.53	10	130	29.5°C	–	–	104	7	130	-	-	3/8 CL	"
09.43	12°S	21.42	128°E	21.32	G	12	080	2-3	2	10	130	29.54	–	–	104	2 8	130	–	–	3/8 CL	ON SITE, PREP ULRICA VLA.
10.00	12°S	22.50	128°E	21.085	G	12	095	2-3	2	10	130	29°C	–	–	103	3 2	320	-	-	3/8 CL	ON SITE, PREP VLA ULRICA – DEPLOY.
10.30	12°S	21.79	128°E	20.36	G	12	080	2-3	2	10	130	29°C	-	–	104	3.5	110	–	-	3/8 CL	• 5nm FROM DROP SITE
10:43.	12°S	[illegible].869	128°E	20.934	G	12	080	2-3	2	10	130	29°C	–	–	104	·9	090	-	-	3/8 CL	START VLA DEPLOY 10.45 FINISH.
12:00	12°S	22.76	128°E	22.43	G	10	060	2-3	1.58	10	130	29.5°C	–	–	103	1·8	108	-	–	3/8 CL	WEATHER STEAM (1) ENG.
12·30	12°S	22.90	128°E	22.96	G	10	060	2-3	1.5	10	130	29.5°	–	–	102	1·4	108	–	–	3/8	"
13·00	12°S	22.83	128°E	24.11	G	8	030	2-3	1.5	10	130	29.5°	–	–	102	1·7	085	–	–	3/8	"
13·30	12°S	22.76	128°E	21.38	G	10	030	2-3	1.5	10	130	29.5	–	–	102	1.5	085	–	–	3/8	"
14 00	12°S	22.55	128°E	25.15	G	10	030	2	1.5	10	150	29.5	–	–	101	2.0	051	–	-	3/8	"
14.30	12°S	20.95	128°E	23.14	G	10	090	2	1.5	10	130	29.5	–	–	102	2.9	310	–	–	3/8	"
15:00	12°S	20.27	128°E	22.07	G	10	090	2	1.5	10	150	29.5	–	–	103	2.7	310	–	–	3/8	"
15·30	12°S	19.42	128°E	20.92	G	10	090	2	1.5	10	150	29.5	–	–	105	3.0	300	–	–	3/8	"
16·00	12°S	18.88	128°E	19.54	G	10	090	2	1	10	150	29.5	–	–	105	2.1	310	–	–	3/8	"
16·30	12°S	18.40	128°E	18.72	G	10	090	2	1	10	130	29.5	–	–	105	2.1	310	–	–	3/8	"
1700	12°S	17.71	128°E	17.31	G	10	090	2	1	10	130	29.5	–	–	105	1.6	310	–	-	3/8	"
1730	12°S	17.86	128°E	16.66	G	12	086	2	1	6	130	29.5	–	–	107	2.0	250	–	-	3/8	"
1800	12°S	18.[illegible]	128°E	15.57	G	11	010	2	1	6	130	29.5	–	–	106	2.5	240	–	-	3/8	"

CRUISE No DERO TRIALS
H.M.A.S. M.V. PACIFIC CONQUEST
Date (UTC) 05-11-98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
1830	12°S	18·30	128°E	15·58	G	11	060	2	1	6	130	24·5	–	–	107	2	015	–	–	3/8	WEATHER STERN 1 ENG
1900	12°S	17·43	128°E	15·85	G	17	090	3	1	6	040	30	–	–	107	2·2	350	–	–	4/8	" "
1930	12°S	15·31	128°E	15·77	G	15	065	3	1	6	040	30	–	–	107	7·5	355	–	–	4/8	" "
2000	12°S	11·36	128°E	15·28	G		060	3	1	6	050	29·5	–	–	107	7·9	325	–	–	3/8	" "
2080	12°S	10·76	128°E	14·96	G	13	100	3	1	6	060	27·5	–	–	107	1·2	242	–	–	3/8	OCTOPUS BUOY ON SURFACE.
21·30.	12°S	10·84	128°E	14·95	G	13	110	3	1·5	6	080	30.	–	–	107	·5	090	–	–	3/8 cc	OCTOPUS ON DECK.
22·00	12°S	12·46	128°E	16·64	G	13	100	3	1·5	6	080	30.	–	–	105	8 6	140	–	–	3/8 cc	TRANSIT HLA DEPLOY SITE.
22:30	12°S	15 37	128°E	19·66	G	13	100	3	1·5	6	080	30	–	–	104	8·8	130	–	–	3/8 cc	"
23·00	12°S	19·45	128°E	18·71	G	10	100	3	1·5	6	090	30	–	–	104	9·6	195	–	–	3/8 cc	TRANSFER TO KIWI. 4 PAX.
23:30	12°S	20·07	128°E	18·79	G	10	080	3	1·5	6	080	30·5	–	–	103	4·7	104	–	–	1/8 cc	TRANSIT TO HLA DROP SITE.
24:00	12°S	21·19	128°E	20·46	G	8	045	3	1·5	6	070	30·7	–	–	103	1·8	105	–	–	1/8 cc	HLA DEPLOYMENT.
24·15.	12°S	21·325	128°E	20·79	C	6	040	3	1·5	6	070	30·8	–	–	102.	1	120	–	–	1/8 cc	IN WATER NODE START POSITION
24:23	12°S	21·399	128°E	20·84	G	6	040	3	1·5	6	070	31	–	–	102	1	120	–	–	1/8 cc	FINISH DEPLOY ULRICA HLA.
24:30	12°S	[illegible]	128°E	21·12	G	6	060	3	1·5	6	070	31	–	–	102	1	190	–	–	1/8 cc	STANDBY LIGHT BULBS
24:48	1ST	BULB.																			
01.00	12°S	21·039	128°E	20·70	G	6	040	3	1·5	6	060	31	–	–	102	·2	—	—	–	1/8 cc	LIGHT BULBS HLA.
01:30.	12°S	21·51	128°E	20·63	G	7	040	2-3	1·2	6	050		–	–	101	1·3	—	1·2	295	1/8 cc	01·53" FINISH HLA
02:00	12°S	21·59	128°E	20·93	G	7	060	2-3	1·2	6	050		–	–	101	1·3	–	1·2	260	1/8 cc	1ST BULB VLA.
02:30	12°S	21·62	128°E	20·30	G	5	035	2-3	1·2	6	045		–	–	101	9 3	310	–	–	1/8 cc	FINISH.

CRUISE No DERA TRIAL'S
~~H.M.A.S.~~ M.V. PACIFIC CONQUEST
Date (UTC) 06-11-98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	**32S**	**29.3**	**153E**	**18.6**	**G**	**12**	**123**	**2**	**3**	**10**	**108**	**25.6**	**24.1**	**18.6**	**1084**	**13.1**	**080**	**6**	**125**	**7/8**	**EXAMPLE**
03.00	12°S	88.8	128°E	16.53	G	5	130	2.5	1.2	6	045	34°	—	—	103	3.3	270°	—	-	1/8	WEATHER STEAM.
03.30	12°S	89	128°E	16.37	G	5	130	2.5	1.2	6	045	34°	—	—	103	3.3	270°	—	—	1/8	"
04.00	12°S	19.97	128	16.54	G	5	130	2.5	1.2	6	045	34°	—	—	105	4.2	270	-	-	1/8	"
04.30	12°S	20.22	128°E	13.82	G	5	130	2.5	1.2	6	045	34°	—	—	105	.5	—	—	—	1/8	DRIFTING
05.00	12°S	20.50	128°E	13.67	G	5	160	2	1.2	6	045	32°C	—	—	105	5.2	250	—	—	1/8	START UP CONTINUE WEATHER STEAM
05.30																					
06.00	12°S	21.71	128°E	1040	G	5	130	2	1.2	6	045	32°C	—	—	107	.9	—	-	-	1/8	DRIFTING QUIETTIME.
06.30	12°S	21.81	128°E	10.67	G	5	030	2	1.2	6	045		—	—	107	.8	-	—	—	1/8	DRIFTING
07.00	12°S	22.67	128°E	10.95	G	5	030	2	1.2	6	045	32°	—	—	107	6.8	150°	-	-	1/8	STEAMING SE.
07.30	12°S	24.40	128°E	12.44	G	5	030	2	1.22	6	045	32	-	-	106	6.4	150	-	-	1/8	"
08.00	12°S	27.67	128°E	15.05	G	5	030	2	1.2	6	045	32°	—	—	104	6.4	150	-	-	1/8	"
08.30	12°S	27.00	128°E	13.00	G	5	030	2	1.22	6.	045	32°	—	—	104	6.4	150	-	-	1/8	"
09.00	12°S	27.42	128°E	16.01	G	5	030	2	1.2	6	045	32°	—	—	96	2.8	112°	-	-	1/8	WEATHER STEAM.
09.30	12°S	28.45	128°E	16.91	G	5	030	2	1	6	045	30	—	—	103	3.5	100	-	—	1/8	"
10.00	12°S	27.81	128°E	15.9	G	4	030	2	1	6	045	30	—	-	92	3.2	285	—	—	1/8	"
10.30	12°S	27.7	128°E	15.5	G	3	030	2	1	6	045	30	—	—	70	.9	—	—	—	1/8	AT ANCHOR.
11.00	12°S	27.72	128°E	15.31	G	6	090	1.2	.5-1	6	060	30	-	—	70	—	—	—	—	1/8	AT ANCHOR.
12 00	12°S	27.72	128°E	15.30	G	3	070	1.2	.5	6	060	30	-	-	70	—	-	-	-	1/8	"
13:00	12°S	27.70	128°E	15.31	G	4	020	1.2	.5	6	060	30	-	-	70	—	—	-	-	1/8	"

CRUISE No DERA TRIALS
~~H.M.A.S.~~ M.V. PACIFIC CONQUEST
Date (UTC) 06-11-98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eights)	Remarks (eg station type, PDR on or off power failure etc)
	Lat		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	**32S**	**29.3**	**153E**	**18.6**	**G**	**12**	**123**	**2**	**3**	**10**	**108**	**25.6**	**24.1**	**18.6**	**1084**	**13.1**	**080**	**6**	**125**	**7/8**	**EXAMPLE**
16:00	12°S	27.70	128°E	15.31	G	6	020	(-)	.5-1	6	070	30°c	—	—	70	—	—	—	—	—	AT ANCHOR TILL 06.30 CST.
14.30	12°S	27.[illegible]	128°E	15.31	G	6	020	1-2	.5-1	6	070	29.5	—	—	70	—	—	—	—	—	"
15.00	12°S	27.68	128°E	15.32	G	6	020	1-2	.5-1	6	070	29.5	—	—	70	—	—	—	—	—	"
15.30	12°S	27.69	128°E	15.33	G	6	020	1-2	.5-1	6	070	29.5	—	—	70	—	—	—	—	—	"
16.00	12°S	27.69	128°E	15.33	G	3	020	1-2	.5-1	6	070	29.5	—	—	70	—	—	—	—	—	"
16.30	12°S	27.69	128°E	15.35	G	3	020	2	1	6	070	29.5	—	—	70	—	—	—	—	—	"
17.00	12°S	27.72	128°E	15.34	G	3	020	2	1	6	070	29.5	—	—	70	—	—	—	—	—	"
17.30	12°S	27.71	128°E	15.36	G	3	020	2	1	6	070	29.5	—	—	70	—	—	—	—	—	"
18.00	12°S	27.71	128°E	15.34	G	3	020	2	1	6	070	29.5	—	—	70	—	—	—	—	—	"
18.30	12°S	27.72	128°E	15.35	G	3	310	1	1	6	350	29.5	—	—	70	—	—	—	—	—	"
1900	12°S	27.73	128°E	15.37	G	3	325	1	1	6	030	29.5	—	—	70	—	—	—	—	—	"
1930	12°S	27.72	128°E	15.37	G	3	340	1	1	6	030	28.5	—	—	70	—	—	—	—	—	"
2000	12°S	27.72	128°E	15.37	G	3	310	1	1	6	030	28.5	—	—	70	—	—	—	—	—	"
21.00	12°S	26.34	128°E	16.17	G	3	310	1	.5	6	030	29.	—	—	104	8.4	028	—	—	CLEAR HAZE	UP ANCHOR 20:45 TRANSIT TO MANAWNUI
21.30	12°S	22.08	128°E	18.44	G	3	310	1	.5	6	030	30	—	—	104	10.6	025	—	—	CLEAR HAZE	TRANSIT TO MANAWNUI TO TRANSFER PAX.
22:00	12°S	20.16	128°E	18.97	G	2	310	1	.5	6	030	30	—	—	104	STATIONARY		.5	030	CLEAR	TRANSFER ① PAX TO ① FROM MANAWANUI.
22:30.	12°S	20.89	128°E	19.45	G	2	310	1	.5	6	030	31°c	—	—	104	8.1	125	—	—	1/8 cc	TRANSIT FROM MANAWANUI → VLA.
23.30	12°S	14.92	128°E	17.69	G	0	010	0	.5	6	020	31°c	—	—	105	9.7	332	—	—	1/8 cc	TRANSIT TO HLA. AMBIENT NOISE SITE.
24:18.	12°S	10.7[illegible]	128°E	15.15	G	4	060	0	.5	6	020	31°c	—	—	105	—	—	1.3	270	1/8 cc	ULRICA HLA SURFACE BUOY - SURFACED.

CRUISE No DERA TRIAL'S
~~R.M.A.S.~~ PACIFIC CONQUEST
Date (UTC) 07/11/98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
24:30.	12°S	10·68	128°E	15·02	G	3	060	0	·5	6	030	31°C	-	—	105	·5	130°	—	-	1/8 CL	START RECOVERY ULRICA HLA.
01:00.	12°S	10·49	128°E	14·83	G	0	10	0	·5	6	030	31°C	—	—	105	1·8	—	2	130	1/8 CL	ULRICA HLA. ON DECK.
02:00.	12°S	15·56	128°E	17·10	G	0	0	0	·5	6	030	31·5°C	—	—	104	7·8	155	-	-	3/8 CL	TRANSIT BACK TO TRIALS SITE.
02:30	12°S	18 37	128°E	18·90	G	0	0	0	·5	6	030	31·5	-	—	103	1·6	-	-	-	1/3	SHUT DOWN & DRIFT AT TRIAL SITE.
03.00	12°S	17·73	128°E	18·31	G	0	0	0	·5	6	030	31·5	—	—	103	1·0	-	-	-	1/3	DRIFTING.
04·00	12°S	18 45	128°E	16·99	G	0	0	0	·5	6	040	31·5	-	-	103	3·3	033	—	-	3/8 CL	STEAM SO ALTERED 1 ENG. STAND BY.
05·00.	12°S	18·54	128°E	19·27	G	0	0	0	·5	6	040	32°C	-	—	103	3·5	071	—	-	1/8 C	"
06:00.	12°S	21·14	128°E	20·02	G	0	10	0	·5	6	040	33·5°C	—	—	102	7·2.	125	—	—	1/8 CL	TRANSIT TO ULRICA VLA. TO RECOVER.
06:30.	12°S	21·885	128°E	20·97	G	0	10	0	·5	6	040	33°c	-	—	103	—	—	·6	SE	3/8 CL	06·15 BUOY SURFACED 06·24 BUOY LINE ON
																					WINCH. 06·34 VLA RECOVERY COMP.
06·54	12°S	21·30	128°E	20·95	G	0	10	0	·5	6	040	33°c	—	—	103	1·7	320	·		3/8 CL	VLA BUOY SURFACED. 07 05 SURFACE BUOY ON
																					DECK, START WINCHING. 07·25 START OF ARRAY
07·30	12°S	21·488	128°E	20·61	G	7	200	0	·5	6	010	31·5°c	-	—	103	1·7	—	1·7	090	3/8 CL	ON DECK. 07·26 ALL FINISH.
08:00.	12°S	20·024	128°E	18·91	G	5	180	1	·5	6	010	31°C	—	—	105	6·7	320	-	-	3/8 CL	TRANSIT FROM ULRICA SITE TO KIWI.
08·30	12°S	19·43	128°E	18·53	G	6	180	1	·5	6	010	31°C	—	—	105	-	—	·5	160	3/8 CL	TRANSFER PAX TO + FROM MANAWANUI.
10:00	12°S	19·5	128°E	18·6	G	4	180	1	·5	6	000	30°C	-	—	106	·5	-	·5	095 175	3/8 CL	TRANSFERS TO + FROM BOFFIN + KIWI
+ COMM'S EXPERIMENT TEST'S.																					
10·30	12°S	19·68	128°E	18·7	G	7	180	1	·5	6	000	30°C	-	-	106	·5	7	·5	310	3/8 CL	COMM'S EXP.
11:00	12°S	19·15	128°E	18·11	G	4	220	1	·5	6	000	30°C	-	—	106	·5		·5	285	3/8 CL	COMM'S EXP.

CRUISE No DERA TRIAL'S.
~~H.M.A.S.~~ M.V. PACIFIC CONQUEST
Date (UTC) 07/11/98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	**32S**	**29.3**	**153E**	**18.6**	**G**	**12**	**123**	**2**	**3**	**10**	**108**	**25.6**	**24.1**	**18.6**	**1084**	**13.1**	**080**	**6**	**125**	**7/8**	**EXAMPLE**
11:30.	12°S	19.0	128°E	18.01	G	5	230	1	.5	6	000	30°C	—	—	106	.5	—	.5	310	1/8 cc	COMM'S EXP. .6 NM NW. KIWI.
12:30	12°S	18.74	128°E	17.71	G	4	240	1	.5	6	040	29.5°C	-	-	106	.5	-	.5	310	1/8 cc	1.04 NM NW. KIWI.
13:30.	12°S	18.29	128°E	17.24	G	5	255	1	.5	6	090	30°	—	—	106	.5	-	.6	310	1/8 cc	1.75 NM NW. "
14:00	12°S	17.96	128°E	16.94	G	5	255	1	.5	6	090	30°	—	—	106	.5	—	.6	310	1/8	2.12 NM NW of KIWI
14.30	12°S	17.53	128°E	16.56	G	5	255	1	.5	6	090	30°	—	—	106	.5	—	.6	310	1/8	2.8 NM NW of KIWI.
15.00	12°S	17.22	128°E	16.36	G	5	255	1	.5	6	090	30°	—	—	106	.5	—	.6	310	1/8	DRIFTING NW
15.30	12°S	16.87	128°E	16.09	G	5	255	1	.5	6	090	30°	—	—	104	.5	—	.6	310	1/8	" "
16.00	12°S	16.56	128°E	15.95	G	5	255	1	.5	6	090	30°	—	—	106	.5	—	.6	310	1/8	" "
16.30	12°S	16.23	128°E	15.49	G	5	255	1	.5	6	090	30°	—	—	106	.5	—	.6	332	1/8	" "
17.00	12°S	16.42	128°E	16.43	G	5	255	1	.5	6	090	30°	—	—	106	4.5	150°	[illegible]	135	1/8	" "
17.30	12°S	17.41	128°E	17.05	G	8	[illegible]	1	.5	6	090	30°	—	—	105	5.1	150	[illegible]	E	1/8	STEAMING TO VICINITY MANAWANUI
18.00	12°S	18.92	128°E	18.54	G	5	180	1	.5	6	080	30°	—	—	105	.9	—	—	—	1/8	DRIFTING NE.
18.30	12°S	18.93	128°E	19.04	G	4	180	1	.5	6	180	30°	—	—	105	.3	—	—	—	1/8	" ENE
1900	12S	18.93	128E	19.41	G	4	210	1	.5	6	180	29.5	—	—	N/A	0.6	—	—	—	1/8	" E
1930	12S	18.97	128E	19.69	G	4	210	1	.5	6	180	29.5	—	—	N/A	1.0	—	—	—	1/8	" E
2000	12S	19.10	128E	20.02	G	2	210	1	.5	6	180	29.5	—	—	N/A	0.6	—	—	—	1/8	" E FINISH COMMS EXP
2030	12S	19.20	128E	20.33	G	2	210	1	.5	6	130	29.5	—	—	105	0.8	—	—		1/8	" S
21:30	12°S	19.49	128°E	18.59	G	0	0	0	.5	6	030	30°C	—	—	105	0.9	—	.9	106	1/8 cc	TRANSFER FA's TO AND FROM KIWI.
22:00	12°S	19.55	128°E	18.62	G	0	0	0	.5	6	030	30°C	—	—	105	0.7	230°	.5	200	1/8 cc	"

CRUISE No DERA TRIALS
~~H.M.A.S.~~ M.V. PACIFIC CONQUEST.
Date (UTC) 05-11-98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (null) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
23·30.	12°S	19·61	128°E	18·10	G	3	200	0	·5	6	030	31·5°c	—	—	105	·8	—	·8	250°	3/8 cc	STAND BY DRIFT IN PREP FOR ARRAY DEPL
24·00	12°S	21·35	128°E	20·65	G	3	180	0	·5	6	060	32·5°c	—	—	103	·5	110	—	—	3/8 cc	DEPLOYING VLA. COMENCED 24 07
												POS: 12°S .21·317' 128°E 20·788'									FINISHED 24·13.
24:30	12°S	21·18	128°E	20·43	G	0	0	0	·5	6	060	32°c	—	—	103	[illegible]	120°	—	—	3/8 cc	PRE-POSITIONING FOR HLA DEPLOY.
01:00	12°S	21·86	128°E	[illegible]·93	G	3	VAR	0	·5	6	060	33°C	—	—	102	1	120°	—	—	3/8 cc	24·55 NODE IN WATER 01·00 ARRAY IN WATER
																					01·10 FINISH HLA DEPLOY.
01:30	12°S	21·54	128°E	20·7	G	0	0	0	·5	6	060		—	—	102	1·4	—	1·4	287	3/8 cc	DEPLOY DOPSS 01·25 HRS
							POS. 12° 21·557'S 128° 20·750'E														
02:00	12°S	19·39	128°E	18·31	G	2	120	0	·5	6	060	33°C	—	—	104	·8	—	1	310	5/8 cc	TRANSFER TOT FROM KIWI + BOFFIN.
02:30	12°S	19·33	128°E	18·31	G	0	0	0	·5	6	060	31°c	—	—	104	1·2	—	1·2	300	5/5 cc	TRANSIT TO DOPSS DEPLOY SITE.
03:00	12°S	19·35	128°E	20·23	G	7	100	0	·5	6	060	30°c	—	—	102	1·5	VAR.	—	—	5/8 cc	ISOLATED SHOWERS STANDBY DOPSS DEPLOY.
03:30	12°S	19·359	128°E	20·42	G	7	045	0	·5	6	060	30°c	—	—	102	1·2	VAR.	—	—	5/8 cc	SHOWERS. STANDBY DOPSS.
04:00	12°S	18·86	128°E	20·47	G	8	040	0	·5	6	060	31°c	—	—	103	2·5	020	~~2·5~~		5/8 cc	STANBY TO DEPLOY DOPSS
04:30.	12°S	19·288	128°E	20·50	G	6	030	0	·2	6	040	31°c	—	—	102	·7	—	·7	260	5/8 cc	DOPSS START TO DEPLOY.
05:00	12°S	18·67	128°E	20·46	G	4	045	1-2	·2	6	040	32°c	—	—	102	·7	—	·7	250	5/8 cc	DRIFT WHILE BOFFIN NOISE PROJECTOR RUNS.
05·30	12°S	18·84	128°E	20·38	G	6	010	1	·2	6	020	32·7°c	—	—	103	·8	—	·8	190	3/8 cc	"
06:00	12°S	19·20	128°E	20·47	G	5	015	1	·2	6	020	34°	—	—	104	·2	—	·2	142	3/8	"
07:00	12°S	19·68	128°E	20·74	G	4	045	1	·2	6	020	34°	—	—	103	1·3	—	1·3	140	3/8 cc	RECOVER DOPSS ARRAY
07:30	12°S	22·1	128°E	21·25	G	0	0	0	·2	6	020	33°c	—	—	103	2·6	2+4	—	—	3/8 cc	LIGHTBULB HLA.

CRUISE No DERA TRIALS.
~~H.M.A.S.~~ MV PACIFIC CONQUEST
Date (UTC) 08-11-98.

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
08·00	12°S	22·12	128°E	21·13	G	0	0	0	·2	6	010	32·7c	—	—	103	1	VARIOUS	-	-	3/8 cc	LIGHT BULBS EXP AT ULRICA HLA.
08:30	12°S	22·2	128°E	20·81	G	0	0	0	·2	6	010	32°c	—	—	103	1·5	VARIOUS	-	-	3/8 cc	DEP TO WEST FOR SRP RUN
08:35	12°S	22·38	128°E	20·36	G	0	0	0	·2	6	010.	32°c	-	-	104	8·2	270°	-	-	3/8 cc	CLEAR AREA TO THE WEST FOR SRP RUN.
09:00	12°S	22·737	128°E	17·08	G	0	0	0	·2	6	010	31°c	—	—	105	1·8	180	-	-	3/8 cc	SHUTDOWN FOR SRP RUN 3·9 WEST TRIALS AREA.
09·30.	12°S	23·39	128°E	17·46	G	4	030	0	·2	6	030	30°c	-	-	105	2	~~8~~—	2	145	3/8 cc	DRIFT STAND BY.
09·40	12°S	23·52	128°E	17·56	G	2	030	0	·2	6	030	30°c	-	-	104	1·5	—	1·5	174	3/8 cc	START-UP TRANSIT TO KIWI.
10:00	12°S	20·94	128°E	18·27	G	4	030	0	·2	6	030	30°c	-	-	104	8·0	010	—	-	3/8 cc	TRANSIT TOWARDS MANAWANUI.
10:10	12°S	19·586	128°E	18·399	G	5	030	0	·2	6	030	30°c	-	-	106	·5	—	·5	165	3/8 cc	ARR MANAWANUI FOR PAX TRANSFERS.
10:30	12°S	19·53	128°E	18·40	G	5	030	0	·2	6	030	30°c	—	—	106	·5	—	-	—	3/8 cc	STANDBY KIWI SVP EXP. DRIFT
10:50	12°S	19·66	128°E	18·4	G	5	030	0	·2	6	030	30°c	-	-	106	·1	—	·1	195	3/8 cc	PERSONEL TRANS. UNDERWAY.
10:55	12°S	19·7	128°E	18·47	G	4	030	0	·2	6	030	30°c	-	-	105	1·3	VAR.	-	-	3/8 cc	TRANSIT TO HLA VLA SITE FO BULBS
11:30	12°S	21·49	128°E	20·3	G	3	030	0	·2	6	030	30°c	—	—	103	9·4	115°	—	-	3/8 cc	·5NM FROM HLA SITE BULB EXP.
12·00	12°S	21·689	128°E	20·87	G	3	330	0	·2	6	030	30°c	—	—	104	2·7.	253	—	-	3/8 cc	HLA SITE. LIGHT BULBS.
12:30.	12°S	21·71	128°E	20·52	G	3	030	0	·2	6	030	29°c	—	—	104	5.	050	-	-	3/8 cc	HLA SITE LIGHT BULB EXPERIMENT.
13·00.	12°S	21·72	128°E	20·9	G	4	030	0	·2	6	030	31°c	-	—	104	·5	—	·5	120	3/8 cc	"
13:30	12°S	21·95	128°E	21·21	G	4	030	0	·2	6	030	30°c	—	—	103	5	VARIOUS	—	-	3/8 cc	500 M RADIUS CIRCL OF HLA CENTRE POINT
14·00	12°S	21·31	128°E	20·7	G	3	020	0	·2	6	020	29·5°c	—	—	104	2·2	005°	—	-	1/8 cc	VLA LIGHT BULBS DEA @ CARDINAL'S
14·30	12°S	21·56	128°E	20·78	G	3	020	0	·2	6	020	29·5c	—	—	103	·2	—	—	-	1/8	"
15·00	12°S	21·24	128°E	20·9	G	0	0	0	·2	6	020	29·5c	—	—	103	·5	—	—	-	1/8	"

CRUISE No DERA TRIAL
H.M.A.S. PACIFIC CONQUEST
Date (UTC) 08 - 11 - 98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
15 30	12°S	21.23	128°E	21.29	G	–	090	1	·2	6	030	29.5	–	–	104	–	–	–	–	1/8	AT ANCHOR
16:00	12°S	21.22	128°E	21.25	G	2	090	1	·2	·6	030	29.5	–	–	104	–	–	–	–	1/8	"
16:30	12°S	21.24	128°E	21.27	G	3	[illegible]	1	·2	·6	030	29.5	–	–	104	–	–	–	–	1/8	"
17.00	12°S	21.23	128°E	21.26	G	5	210	1	·2	6	030	29.5	–	–	104	–	–	–	–	1/8	"
17.30	12°S	21.22	128°E	21.27	G	4	230	1	·2	6	030	29.5	–	–	104	–	–	·1	050	1/8	"
18.00	12°S	21.24	128°E	21.27	G	5	230	1	·2	6	030	29.5	–	–	103	–	–	·1	250	1/8	"
18.30	12°S	21.23	128°E	21.29	G	4	230	1	·2	6	030	29.5	–	–	103	–	–	·1	250	1/8	"
19.30	12°S	21.24	128°E	21.31	G	2	255	1	·2	6	030	29.5	–	–	103	–	–	–	[illegible]	1/8 cc	"
21 00	12°S	21.25	128°E	21.29	G	3	230	1	·2	6	030	30°C	–	–	104	–	–	–	–	1/8 cc	START-UP, WEIGH ANCH MOVE TO RECOVER ULRIC + OCTOPUS. 21.15 RIB PICKUP.
21.10.	ONSITE OCTOPUS BUOY ALREADY ON SURFACE.																				
21:30	12°S	21.59	128°E	20.86	G	3	230	1	·2	6	030	30.5°C	–	–	104	–	–	·7	110	1/8 cc	START WINCHING OCTOPUS 21.35 OCTOPUS ON DECK
																					21.40 PROCEED ULRIC HLA SITE (RECOVERY).
21 46.	12°S	21.94	128°E	21.03	G	2	230	1	·2	6	030	30°C	–	–	103	–	–	1·2	124	1/8 cc	21.46 ON SITE PING RELEASE, DID
22.00	12°S	22'	128°E	21.155	G	0	0	0	·2	6	030	30°C	–	–	103	–	–	1	090	1/8 cc	NOT SURFACE, 1- 1.5 EAST CURRENT.
22.30	12°S	21.90	128°E	20.98	G	0	10	0	·2	6	030	31°C	–	–	103	–	–	·8	080	1/8 cc	STANDBY FOR ULRIC HLA BUOY TO SURFACE
23.00	12°S	[illegible]·91	128°E	21.10	G	2	0	0	·2	6	030	31°C	–	–	103	–	–	·7	140	1/8 cc	DRIFT STAND BY
23:30	12°S	21.95	128°E	21.04	G	0	0	0	·3	6	030	31.5°C	–	–	103	–	–	·4	180	1/8 cc	"
24:00	12°S	21.89	128°E	20.91	G	0	10	0	·3	6	030	32°C	–	–	103			·3	150	1/8 cc	RE-PING BUOY ON SURFACE.
24:09	12°S	21.88	128°E	20.83	G	0	0	0	·3	6	030	32.5°C	–	–	103	–	–	·5	270	1/8 cc	LINE ONBOARD START WINCH.

CRUISE No DERA TRIALS.
H.M.A.S. M.V. PACIFIC CONQUEST
Date (UTC) 09-11-98.

BRIDGE LOG

Time (UTC)	Position Lat.		Position Long.		Fix Type	Wind Speed (kn)	Wind Direct True	Sea State	Swell Height (m)	Swell Period (sec)	Swell Direction True	Air Temp °c Dry	Air Temp °c Wet	Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set Speed (kn)	Ship Set Direct	Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
04:35 [illegible]	12°S	21.876	128°E	20.84	G	0	0	0	·5	6	030	33°c	-	-	103	1·2	-	1·2	290	1/8 cc	RECOVERY OF HLA IN PROGRESS 1ST.wi
																					24:34 START OF ARRAY ON DECK.
24:37	12°S	21.82	128°E	20.77	G	0	0	0	·5	6	030	33	-	-	103	·5	-	·5	300	1/8 cc	RECOVERY COMPLETE →TRANSIT TO KIWI.
01 00	12°S	19.6	128°E	18.47	G	0	0	0	·5	6	030	33·5	-	-	104	8	310	-	-	1/8 cc	TRANSIT TO KIWI. 01:07 ARR KIWI.
01:30	12°S	19·44	128°E	18·28	G	0	0	0	·5	6	030	33·5	-	-	104	1	300	-	-	1/8 cc	STAND BY KIWI FOR PAX TRANSFERS.
02:00	12°S	19·16	128°E	18·26	G	0	0	0	·5	6	030	33·5	-	-	104	·8	273	-	-	1/8	"
02 30	12°S	18·98	128°E	18·11	G	0	0	0	·5	6	030	33·9	-	-	104	1·0	283	-	-	1/8	"
03-00	12°S	18·76	128°E	17·93	G	0	0	0	·5	6	030	35	-	-	104	·8	280	-	-	1/8	"
03:38	12°S	18.40	128°E	17·81	G	0	0	0	·5	6	030	35°c	-	-	104	1·7	315	-	-	3/8 cc	NRL COMMS EXP.
03.46	12°S	18·31	128°E	17·76	G	2	230	0	·5	6.	030	35°c	-	-	105	·8	-	·8	N	5/8 cc	MAIN ENG SHUT DOWN DRIF NRL COMMS EXP.
04:30	12°S	17.39	128°E	17·75	G	0	0	0	·5	6	030	35°c	-	-	104	·7	-	·7	N	5/8 cc	DRIFT.
05:00	12°S	17.68	128°E	17·89	G	0	0	0	·5	6	035	34°c	-	-	104	·6	-	·6	N	5/8 cc	"
06:00	12°S	17·27	128°E	18·39	G	2	VAR	0	·5	6	035	35°c	-	-	104	1·0	-	1·0	N	5/8 cc	"
06·30	12°S	17·11	128°E	18·93	G	0	0	0	·5	6	035	35°c	-	-	105	·7	-	·7	N	5/8 cc	"
07.00	12°S	16·99	128°E	19·20	G	3	180	0	·5	6	035	34°c	-	-	104	·5	-	·5	N	5/6 cc	"
07 30	12°S	16 87	128°E	19·45	G	5	180	[illegible]	·5	6	confused	34°c	-	-	104	·5	-	·5	NE	5/6 cc	"
08:00	12°S	16·88	128°E	19·79	G	5	180	2	·5	6	confused	32°c	-	-	104	1·6	-	1 6	E	5/5 cc	"
08.40.	12°S	16·8	128°E	20 39	G	8	050	2	·5	6	confused		-	-	105	9 3	007°.	-	-	5/8 cc	START-UP PREPARE TO DEPLOY OCTOPUS.
09:00	12°S	13·75	128°E	20·78	G	8	050	2	·5	6	040		-	-	104	9·1	011°	-	-	5/8 cc	TRANSIT TO OCTOPUS ~~DEPLOY SITE~~

CRUISE No DERA TRIALS.
H.M.A.S. M.V. PACIFIC CONQUEST
Date (UTC) 09/11/98

BRIDGE LOG

Time (UTC)	Position Lat.		Position Long.		Fix Type	Wind Speed (kn)	Wind Direct True	Sea State	Swell Height (m)	Swell Period (sec)	Swell Direction True	Air Temp °C Dry	Air Temp °C Wet	Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set Speed (kn)	Ship Set Direct	Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
03 45	**32S**	**29.3**	**153E**	**18.6**	**G**	**12**	**123**	**2**	**3**	**10**	**108**	**25.6**	**24.1**	**18.6**	**1084**	**13.1**	**080**	**6**	**125**	**7/8**	**EXAMPLE**
09:30.	12°S	11·53	128°E	21·33	G	3	120	1-2	·5-1	6	040.	30·5	–	–	103	1·2.	–	1·2	100	5/8 CL	DEPLOY OCTOPUS. STORM TO EAST.
09:40	12S	11·93	128°E	21·54	G	3	120	1-2	·5-1	6	040	30·2	–	–	104	9·6	185	–	–	5/8 CL	TRANSIT TO ULRICA VLA SITE.
10·15	12°S	16·22	128°E	20·3	G	3	1	2	·5	6	040	30°C	–	–	105	9·0	210°	–	–	5/8 CL	ALT 4 TOWARDS KIWI IN PREP FOR TRANSFR
10·30	12°S	18·999	128°E	18·6	G	0	0	0	·5	6	040	30°C	–	–	105	8·8	223	–	–	5/8 CL	TRANSIT TO KIWI STANDBY PAX TRANSFER.
10:45	12°S	19·351	128°E	17·48	G.	0	0	0	·5	6	040	30°C	–	–	106	–	–	–	–	3/8 CL	DROP ANCHOR.
11.00	12°S	19·369	128°E	17·51	G	0	0	0	·5	6	040	30°C	–	–	106	–	–	–	–	3/8 CL	ANCHORED 1NM WEST
12:00	12°S	19·27	128°E	17·5	G	0	0	0	·5	6	040	30°C	–	-	106	–	–	-	-	3/8 CL	MANAWANUI.
12·30	12°S	19·17	128°E	17·42	G	15	160	3	·5	6	040	27°C	–	–	106	–	–	·3	–	5/8	AT ANCHOR.
13·30	12°S	19·18	128°E	17·41	G	2	000	1	·5	6	040	26·5°	–	–	106	–	–	·4	–	3/8	"
14·00	12°S	19·18	128°E	17·43	G	2	030	1	·5	6	040	27°	–	–	106	–	–	·1	–	3/8	"
14 30	12°S	19·18	128°E	17·42	G	4	070	1	·5	6	040	27°	–	–	106	–	–	·7	-	3/8	"
15·00	12°S	19·19	128°E	17·43	G	2	070	1	·5	6	040	27°	–	–	106	–	–	·2	–	3/8	"
15·30	12°S	19·18	128°E	17·39	G	8	030	1	·5	6	040	28°	–	–	106	–	–	·4	–	5/8	"
16·00	12°S	19·18	128°E	17·43	G	13	240	1	·5	6	040	28°	–	–	105	–	–	·6	-	5/8	"
16·30	12°S	19·18	128°E	17·41	G	8	240	1	·5	6	040	28°	–	–	105	–	–	·7	-	5/8	"
17·00	12°S	19·16	128°E	17·42	G	4	240	1	·5	6	040	28°	–	–	105	–	–	·3	–	5/8	"
17·30	12°S	19·19	128°E	17·43	G	3	210	1	·5	6	040	28°	–	–	105	–	–	·7	–	5/8	"
18·00	12°S	19·18	128°E	17·44	G	6	310	1	·5	6	040	28°	–	–	105	–	–	·8	–	5/8	"
18·30	12°S	19·20	128°E	17·46	G	9	310	1	·5	6	040	28·5	–	–	105	–	-	·3	-	5/8	"

~~CRUISE No~~ DERA TRIALS
~~H.M.A.S.~~ PACIFIC CONQUEST
Date (UTC) 09/11/98 – 10/11/98.

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.[illegible]	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
19.00	12°S	19.23	128°E	17.44	G	8	025	1	·5	6	040	28.5	—	—	105	—	—	—	—	5/8	ANCHORED
1930	12°S	19.21	128°E	17.44	G	5	025	1	·5	6	040	28.5	—	—	105	—	—	—	—	5/8	"
2000	12°S	19.20	128°E	17.45	G	3	025	1	·5	6	040	28.5	—	—	105	—	—	—	-	5/8	"
2030	12°S	19.21	128°E	17.46	G	3	350	1	·5	6	040	29	—	—	105	—	—	—	—	4/8	"
2100	12°S	19.20	128°E	17.46	G	3	300	1	·5	6	040	29	—	—	165	—	—	—	—	4/8	"
2130	12°S	19.21	128°E	17.46	G	3	250	1	·5	6	040	29	—	—	105	—	—	—	—	4/8	"
22.00	12°S	19.21	128°E	17.47	G	3	220	1	·5	6	040	30°C	—	—	105	—	—	—	—	3/8 CL	START-UP WEIGH
																	152°				ANCHOR TRANSFER PAX, 0.6 FUEL KIWI.
22:30	12°S	19.19	128°E	18.53	G	5	220	1	·5	6	040	30°C	—	-	104	9.4	[illegible]		—	3/8 CL	DOPSS PEOPLE ON BOARD TRANSIT TO DOPSS SITE
23.00	12°S	20.23	128°E	19.14	G	5	220	1	·5	6	040	30°C	—	—	104	9.4	130°	—	—	3/8 CL	TRANSIT TO DOPSS SITE.
																					23.04 ON STATION: FOR DOPSS DEPLOYMEN
																					23.15 [illegible] STREAMING DEPLOYMENT LINE.
																					23 26 NOISE START. 23 28 TUBE RELEASED
																					23.30 TUBE RELEASED 24.00 FAILED TO POWER
24:00	12°S	20.29	128°E	19.86	G	3	220	1	·5	6	020	32°C	—	—	103	·7	—	·7	310	3/8 CL	UP START RECOVERY
24:30	12°S	20.27	128°E	19.62	G	3	220	1	·5	6	030	33°C	—	-	104	·5	—	·5	270°	3/8 CL	STANDBY DRIFT WHILE DOPSS RECOVERY
24:55	12°S	21.32	128°E	20.73	G	3	220	1	·5	6	030	33°C	-	-	103	·6	-	·6	280°	3/8 CL	PING VLA TO TURN ON ·01·03 CLEAR
01:10	12°S	22.65	128°E	20.54	G	3	220	1	·5	6	030	31°C	—	—	102	9	186°	—	—	3/8 CL	AREA TO THE STH. 3.00 NM'S.
01:20	12°S	24.12	128°E	20.28	G	6	170	1	·5	6		31°C	-	-	103	1.0	178°	-	-	3/8 CL	SHUT DOWN DRIFT FOR BOFFIN SUS

CHARGE RUN EXP.
WITH VLA.

CRUISE No DEKA TRIALS.
~~H.M.A.S.~~ MV. PACIFIC CONQUEST.
Date (UTC) 10/11/98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
01:30	12°S	23.92	128°E	19.61	G	[illegible]	[illegible]	2	.5	6	050	31°	–	–	102	1.4	300			3/8	DRIFTING/SHUT DOWN
02:00	12°S	23.63	128°E	18.97	G	7	160	2	.5	6	050	31°	–	–	103	1.6	300	–	–	3/8	"
02:30	12°S	23.43	128°E	18.35	G	20	160	2	.5	6	050	30.5	–	–	102	1.8	300	–	–	5/8	"
04:10	12°S	23.21	128°E	16.79	G	11	090	3	.5	6	050	30°	–	–	104	1.5	–	1.5	076	5/8	"
04:25	12°S	22.77	128°E	17.21	G	12	070	3	.5	6	040	30°	–	–	103	8.5	063	–	–	5/8 cc	TRANSIT TO VLA SITE FOR RECOVERY.
05:05	12°S	21.14	128°E	20.56	G	10	130	3	.5	6	100.	30°c	–	–	102	4	115	–	–	5/8 cc	BUOY SURFACED. PICKED UP BY RESCUE.
05:15	12°S	21.35	128°E	20.68	G	10	110	3	.5	6	120.	29.3°c	–	–	103	–	–	–	–	5/8 cc	LINE ON-BOARD START WINCHING.
																					05:21 CANISTER ON DECK. START PULLING ARRAY
																					ONBOARD. 05:24 ALL FINISHED.
05:30	12°S	21.12	128°E	20.45	G	5	110	3	.5	6	110	29.9°c	–	–	103	1.2	–	1.2	280	5/8 cc	ALL FINISHED. TRANSFER PERSONEL TO BOFFIN.
05:45	12°S	20.71	128°E	19.8	G	5	110	3	.5	6	110	29.5°c	–	–	102	8.6	304	–	–	5/8 cc	TRANSIT TO KIWI PICK UP PERSONELL
06.00	12°S	20.02	128°E	18.74	G	9	110	3	.5	6	110	29.5°c	–	–	103	.9	–	.9	070	5/8 cc	PICK-UP DEKA PERSONEL FROM KIWI.
06:42	12°S	19.98	128°E	18.61	G	11	110	3	.5	6	110	29°c	–	–	104	1.0	–	1.0	300	5/8 cc	NRL COMMS EXP DEPLOY ARRAY.
06:30	12°S	19.94	128°E	19.27	G	9	110	3	.5	6	130	29°c	–	–	103.	1.0	–	1.0	270	5/8 cc	"
07:00	12°S	19.93	128°E	17.90	G	10	090	3	.5	6	070	28.7°c	–	–	105	0.7	–	0.7	270	5/8 cc	"
08:00	12°S	20.19	128°E	17.32	G	8	060	3	.5	6	090	28°c	–	–	104.	0.5	–	0.5	230	5/8 cc	"
09.00	12°S	20.78	128°E	17.05	G	10	090	3	.5	6	110	29°c	–	–	105.	0.5	–	0.5	200	5/8 cc	"
10:00	12°S	21.78	128°E	16.85	G	10	075	3	.5	6	090	29°c	–	–	105.	1.3	–	1.3	210	5/8 cc	"
11:00	12°S	22.8	128°E	16.86	G	8	070	3	.5	6	090	29.5°c	–	–	105	0.6	–	0.6	160	3/8 cc	"

CRUISE No DERA TRIALS.
~~H.M.A.S.~~ M.V. PACIFIC CONQUEST
Date (UTC) 11/11/98.

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec.)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	**EXAMPLE**
12.00	12°S	23·93	128°E	16·72	G	6	025	1-2	·5	6	090	29·5°c	–	–	105	0·4	–	0·4	155	3/8 cc	NRL ACOMMS EXP DRIFT TO STH.
13 00	12°S	24·89	128°E	16·58	G	6	020	1·2	·5	6	←	29°c	–	-	104	01	–	0·7	150	3/8 cc	"
14 00	12°S	25·75	128°E	16·57	G	7	350	1-2	·2	–	–	29°c	–	-	105	1·0	–	1·0	190	2/8 cc	"
15·00	12°S	26·15	128°E	16·01	G	8	350	1-2	·2	–	–	29c	–	–	104	·6	–			2/8 c	"
15:30	12°S	26·73	128°E	15·37	G	11	350	1-2	·2	–	–	29c	–	–	104	·4	–			2/8	"
16·30	12°S	27·08	128°E	14·46	G	7	350	1-2	·2	–	–	29c	–	–	103	·9	–			5/8	"
17·30	12°S	27·3	128°E	14·2	G	12	350	1-2	·2	–	–	29c	–	–	101	·1	–			5/8	"
18·30	12°S	27·4	128°E	15·9	G	6	350	1-2	·2	–	–	28·5	–	··	103	·5	–			5/8	"
19:30	12°S	27·60	128°E	14·01	G	1	200	1-2	·2	–		28	–	–	103	·7	–			5/8	"
20:20	12°S	27·85	128°E	14·22	G	3	200	1	·2	6	020	28·5	–	–	103	·9	–	·9	160	5/8 cc	"
21:30	12°S	19·9'	128°E	18·82	G	4	020	1	·25	6	020	28·5	–	–	104	2	—	–	–	5/8 cc	TRANSIT TO R/W: TRANSFER 0.8. FUEL → HEAD OCTOPUS SITE.
22:00	12°S	15·02	128°E	20·07	G	5	020	1	·5	6	020	29·54	–	–	104	10	027	–	–	5/8 cc	TRANSIT TO OCTOPUS SITE FOR RECOVERY.
22:30	12°S	11 59	128°E	21·95	G	4	040	1	·5	6	020	29·5°c	–	–	103	·2	–	·2	140°	5/8 cc	PING OCTOPUS RELEASE START RECOVERY.
23:00	12°S	11·67	128°E	21·4	G	2	000	1	·5	6	020	29·5°	–	–	103	1·3	–	1·3	150°	5/8 cc	OCTOPUS ON DECK.
24:00	12°S	17·57	128°E	18·33	G	3	VAR	1	·5	6	020	30°C	–	–	105	7	220°	–	–	5/8 cc	STORMS APP. SSE TRANSIT TO OBS SITE.
01:00	12°S	19·95	128°E	19·42	G	18	160	2-3	·5	6	confused	29°c	–	–	104	2.	027	–	–	RAIN 3/8 cc	SOUNDING + GRAPPLING RUN FOR OBS.
02.00	12°S	19·75	128°E	18·45	G	23	145	3-4	·5/1	6	130	29°c	–	–	104	1·1	094	–	–	RAIN	PACK UP + SECURE FOR PASSAGE DARWIN
02:33	12°S	20'	129°E	19·589	G	16	150	4	·5/1	6	140	29°c	–	–	103	9·4	090	–	–	RAIN 7/8 cc	SECURED + STOWED. DEPART TRIALS AREA
																					FOR DARWIN.

4.4 Manawanui Bridge Logs

CRUISE No
~~H.M.A.S.~~ HMNZS MANAWANUI
Date (UTC) 2 NOV 1998

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
0430	12S	20.1	128E	18.7	G	15	070	2	←	NIL	→	31.3	"	34.0	102	0	150	"		8/8	AT ANCHOR (DEPLOYING OBS ARRAY)
0530	12S	20.1	128E	18.7	G	15	070	2	←	NIL	→	30.0	"	34.0	102	0	125	"		6/8	AT ANCHOR (DEPLOYING OBS ARRAY)
0630	12S	20.1	128E	18.9	G	15	080	3	←	NIL	→	35.0	"	34.0	102	0	125	"		6/8	AT ANCHOR (DEPLOYING OBS ARRAY)
0730	12S	20.1	128E	18.9	G	10	080	3	←	NIL	→	35 0	"	34.0	102	0	125	"		6/8	AT ANCHOR (DEPLOYING OBS ARRAY)
0830	12S	20.2	128E	18.9	G	5	070	3	←	NIL	→	33.5	"	"	102	0	175	"		5/8	AT ANCHOR (DEPLOYING OBS ARRAY)
0930	12S	20.1	128E	18.6	G	5	060	2	0.5	5	070	30.5	"	34.0	102	0	224	"		4/8	AT ANCHOR (DEPLOYING OBS ARRAY)
1030	12S	20.0	128E	18.6	G	5	050	2	0.5	5	070	295	"	740	102	0	260	"		4/8	AT ANCHOR (DEPLOYING OBS ARRAY)
1130	12S	20.0	128E	18.6	G	0	–	2	0.5	5	040	29.5	"	34.0	102	0	260	"		3/8	AT ANCHOR (DEPLOYING OBS ARRAY)
1230	12S	20.1	128E	18.9	G	0	–	2	0.5	5	040	29.5	"	34.0	102	0	100	"		3/8	AT ANCHOR (DEPLOYING OBS ARRAY)
1330	12S	20.0	128E	18.9	G	0	–	2	0.5	5	040	295	"	34.0	102	0	120	"		3/8	AT ANCHOR (DEPLOYING OBS ARRAY)
1430	12S	20.7	128E	20.0	G	0	–	2	0.5	5	040	29.5	"	34.0	105	0	290	"		3/8	STOPPED IN THE WATER.
1630	12S	21.5	128E	21.0	G	0	–	2	0.5	5	040	28.5	"	34.0	105	0	260	"		2/8	STOPPED IN THE WATER
1830	12S	22.7	128E	22.1	G	0	–	2	0.5	5	040	28.5	"	34.0	105	0	270	"		2/8	Stopped in the water
2030	12S	23.8	128E	22.1	G	0	–	2	0.5	5	040	28.5	"	34.0	105	0	226	"		2/8	STOPPED IN WATER.

CRUISE No 2
H.M.A.S. ~~3 NOV 98~~ MANAWANUI
Date (UTC) 3 NOV 98

BRIDGE LOG

Time (UTC)	Position Lat.		Position Long.		Fix Type	Wind Speed (kn)	Wind Direct True	Sea State	Swell Height (m)	Swell Period (sec)	Swell Direction True	Air Temp °c Dry	Air Temp °c Wet	Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set Speed (kn)	Ship Set Direct	Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
0130	12S	18.9	128E	18.2	G	LIGHT AIRS		1	←	NIL	→	33.0		34	100	0	175	1	000	4/8	STOPPED IN WATER READY FOR FODA DEPLOYMENT
0230	12S	19.3	128E	19.3	G	LIGHT AIRS		1	←	NIL	→	33.0		34	100	0	260	1	000	4/8	STOPPED IN WATER DEPLOYING FODA ARRAY
0330	12S	19.4	128E	19.1	G	LIGHT AIRS		1	←	NIL	→	33.0	"	34	100	0	290	1	000	4/8	STOPPED IN WATER DEPLOYING FODA ARRAY
0430	12S	19.9	128E	19.2	G	LIGHT AIRS		1	←	NIL	→	33.0	"	34	100	0	180	1	120	4/8	STOPPED IN WATER DEPLOYING FODA ARRAY
0530	12S	20.0	128E	19.3	G	LIGHT AIRS			←	NIL	→	36.0	"	34	100	0	120	1	120	4/8	ANCHORING EVOLUTION
0730	12S	19.9	128E	19.2	G	LIGHT AIRS		1	←	NIL	→	39.7			100	0	140			1/8	AT ANCHOR
0930	12S	19.9	128E	19.2	G	LIGHT AIRS		1	←	NIL	→	36.0			100	0	142			1/8	"
1130	12S	19.9	128E	19.2	G	LIGHT AIRS		1	←	NIL	→	31.5			100	0	133			1/8	"
1330	12S	19.9	128E	17.2	G	LIGHT AIRS		1	←	NIL	→	30.5			100	0	129			1/8	"
1530	12S	19.9	128E	19.2	G	LIGHT AIRS			←	NIL	→				100	0	130			1/8	"
1730	12S	19.9	128E	19.2	G	LIGHT AIRS		1	←	NIL	→				100	0	130			1/8	"
1930	12S	19.9	128E	19.2	G	LIGHT AIRS		1	←	NIL	→	29.2			100	0	136			1/8	"
2130	12S	19.9	128E	19.2	G	LIGHT AIRS		1	←	NIL	→	[illegible]			100	0	135			1/8	"
2330	12S	19.9	128E	19.2	G	LIGHT AIRS		1	←	NIL	→	30.0			100	0	135			1/8	"
~~0130~~	~~12S~~	~~19.8~~	~~128E~~	~~19.1~~	G										~~100~~	~~0~~					"
~~0230~~	~~12S~~	~~19.9~~	~~128E~~	~~19.1~~	G										~~100~~	~~0~~					"

CRUISE No
H.M.A.S. MANAWANUI
Date (UTC) 4 NOV 98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec.)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.8	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
0130	12S	19.9	128E	19.2	G	LIGHT AIRS		0	←	NIL	→	31.5	〃	34.0	100	1.5	135	〃	〃	2/8	WEIGHING ANCHOR
0330	12S	19.6	128E	19.0	G	LIGHT AIRS		1	←	NIL	→	33.3	〃	34.0	100	0	175	〃	〃	2/8	AT ANCHOR
0530	12S	34.5	127E	55.3	G	LIGHT AIRS		1	←	NIL	→	36.5	〃	34.0	100	0	177	〃	〃	2/8	AT ANCHOR
0730	12S	19.6	128E	18.9	G	LIGHT AIRS		0	←	NIL	→	35.8	〃	34.0	100	0	177	〃	〃	2/8	AT ANCHOR
0930	12S	19.6	128E	18.9	G	Light Airs		0	←	NIL	→	33.8	〃	34.0	100	0	172	〃	〃	3/8	AT ANCHOR
1130	12S	19.6	128E	18.9	G	LIGHT AIRS		0	←	NIL	→	33.4	〃	34.0	100	0	174	〃	〃	3/8	AT ANCHOR
1330	12S	19.6	128E	18.9	G	LIGHT AIRS		0	←	Nil	→	31	〃	34.0	100	0	174	〃	〃	3/8	At Anchor
1530	12S	19.6	128E	18.9	G	LIGHT AIRS		0	←	NIL	→	30.0	〃	34.0	100	0	177	〃	〃	3/8	AT ANCHOR.
1730	12S	19.6	128E	19.0	G	LIGHT AIRS		0	←	NIL	→	29.8	〃	34.0	100	0	177	〃	〃	3/8	At ANCHOR.
1930	12S	19.6	128E	19	G	LIGHT AIRS		1	←	NIL	→	29.5		34	100	0	177			3/8	AT ANCHOR
2130	12S	19.6	128E	19	G	LIGHT AIRS		0	←	NIL	→	29	〃	34.0	100	0	177	〃	〃	3/8	AT ANCHOR
2330	12S	19.6	128E	18.9	G	LIGHT AIRS		1	←	NIL	→	30.8	〃	34.0	1000	0	178	〃	〃	3/8	AT ANCHOR

CRUISE No
H.M.A.S. MANAWANUI
Date (UTC) 5NOV98

BRIDGE LOG

Time (UTC)	Position Lat.		Position Long.		Fix Type	Wind Speed (kn)	Wind Direct True	Sea State	Swell Height (m)	Swell Period (sec)	Swell Direction True	Air Temp °C Dry	Air Temp °C Wet	Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set Speed (kn)	Ship Set Direct	Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
0130	12S	19.5	128E	18.7	G	50	[illegible]	4	1.5	3	300	285	"	340	100	0	200	"		8/8	AT ANCHOR
0330	12S	19.5	128E	18.8	G	50	300	4	1.5	3	300	285	"	34.0	100	0	205	"		8/8	AT ANCHOR.
0530	12S	19.5	128E	18.8	G	15	300	4	1.5	3	300	285	"	34	100	0	205	X		3/8	At Anchor
0730	12S	19.8	128E	19.0	G	10	100	4	1.5	5	300	30.5	"	340	100	0	265	1	120	3/8	Recovery of OPTIC FIBRE [illegible] LAYING MKR [illegible]
0930	12S	19.9	128E	18.9	G	15	120	4	1	15	120	30	X	34	100	0	191	/	/	6/8	AT ANCHOR
1130	12S	19.8	128E	18.9	G	12	075	4	1.5	5	075	29.4	"	34	100	0	194	/	/	1/8	AT ANCHOR
1330	12S	19.8	128E	18.8	G	5	080	4	1.0	5	075	29	/	34	100	0	192	/	/	3/8	" "
1530	12S	19.8	128E	18.8	G	8	080	4	1.0	5	075	29	/	34	100	0	195	/	/	2/8	" "
1730	12S	19.9	128E	19.0	G	8	080	4	1.0	5	075	28	"	34.0	100	0	210	"		3/8	AT ANCHOR.
1930	12S	19.9	128E	19.1	G	8	080	4	1.0	5	075	28	"	34.0	100	0	200	"		3/8	AL Anchor
2130	12S	19.8	128E	18.8	G	10	060	3	1.0	5	075	29.5	"	34.0	100	0	198	"		1/8	AT ANCHOR
2330	12S	19.8	128E	18.8	G	10	090	3	1.0	5	080	30	/	34	100	0	192	"		1/8	AT ANCHOR
~~0130~~	~~12S~~	~~19.8~~	~~128E~~	~~18.7~~	~~G~~	[illegible]	[illegible]	~~3~~	~~1.0~~	~~5~~	[illegible]	~~31~~	"	~~34~~	~~100~~	~~0~~	~~192~~	"		1/8	~~AT ANCHOR.~~
03																					

CRUISE No
H.M.A.S. MANAWANUI
Date (UTC) 6 NOV 98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direc True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direc		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
0130	12S	19.8	128E	187	G	10	090	3	1.0	5	090	31	"	34	1000	0	152	"	"	1/8	At Anchor
0330	12S	19.9	128E	18.7	G	10	110	3	.5	5	110	32.4	"	34	1000	0	169	"	"	4/8	At Anchor
0530	12S	19.9	128E	18.8	G	10	110	3	1.0	5	110	32.5	"	34	100	0	197	"	"	4/8	At Anchor
0730	12S	20.1	128E	19.1	G	10	110	3	1.0	5	110	33.8	"	34.0	100	0	225	"	"	3/8	AT ANCHOR
0930	12S	20.1	128E	19.1	G	10	110	3	1.0	5	110	33.5	"	34.0	100	0	225	"	"	3/8	At Anchor
1130	12S	20	128E	19	G	5	150	2	.5	4	120	33	"	34	100	0	230	"	"	3/8	AT ANCHOR
1330	12S	20	128E	19	G	5	045	2	.5	4	120	29.7	"	34	100	0	274	"	"	2/8	AT ANCHOR.
1530	12S	20	128E	19	G	LIGHT AIRS		2	.5	4	120	29.0	"	34	100	0	270	"	"	2/8	AT ANCHOR
1730	12S	20	128E	19	G	5	310	2	.5	4	310	28.1	"	34	100	0	281	"	"	2/8	AT ANCHOR
1930	12S	20	128E	19.1	G	5	310	2	.5	5	010	29.0	/	34	100	0	204	"	"	2/8	" "
2130	12S	20	128	19.1	G	5	320	2	.5	5	015	29.0	"	34	100	0	200	"	"	1/8	AT ANCHOR
2330	12S	19	128E	714	G	LIGHT AIRS		1	0.5	5	050	35.0	"	31°c	100	0	030	"	"	1/8	RECOVERY · [illegible] · RELAXING [illegible]

CRUISE No
H.M.A.S. MANAWANUI
Date (UTC) 07 NOVEMBER 1998

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direction True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direction		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
0130	12S	19.4	128E	18.5	G	LIGHT AIRS		1	0.5	10	040	37.0	/	34.0	100	0	135	AT ANCHOR		1/8	AT ANCHOR
0330	12S	19.4	128E	18.5	G	LIGHT AIRS		1	05	5	040	33°	/ "	34	100	0	135	/ "	/	1/8	AT ANCHOR
0530	12S	19.4	128E	18.5	G	LIGHT AIRS			0.5	5	040	37.5	"	34	100	0	138	/ "	/	1/8	AT ANCHOR.
0730	12S	19.4	128E	18.6	G	LIGHT AIRS		0	0.2	3	040	35.0	"	34.0	100	0	139	/	/	2/8	AT ANCHOR.
0930	12S	19.3	128E	18.5	G	5	230	1	0.5	5	040	31.5	/	34	100	0	139	/ "	/	1/8	" "
1130	12S	19.3	128E	18.5	G	5	230	1	0.5	5	040	30	/	34	100	0	137	/	/	2/8	" "
1330	12S	19.3	128E	18.5	G	3	230	2	1.5	5	140	30.5	/	34	100	0	139	/	/	NIL	AT ANCHOR
1530	12S	19.3	128E	18.5	G	4	120	1	0.5	5	270	30	/	34	100	0	137	/	/	NIL	AT ANCHOR
1730	12S	19.3	128E	18.6	G	LIGHT AIRS		2	0.5	5	240	29.5	/	34	100	0	137	/	/	NIL	AT ANCHOR
1930	12S	19.3	128E	18.6	G	LIGHT AIRS		2	0.5	5	240	29.5	/	34	100	0	139	/ "	/	NIL	AT ANCHOR.
2130	12S	19.3	128E	18.5	G	LIGHT AIRS		1	0.05	5	220	29.5	/	34	100	0	138	/ "	/	1/8	AT ANCHOR.
2330	12S	19.3	128E	18.5	G	LIGHT AIRS		1	5	5	230	30	/	34	100	0	139	/ "	/	3/8	" "

CRUISE No ________
H.M.A.S. Manoora
Date (UTC) 08 NOV 98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp (hull) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
0130	12S	19.4	128E	18.5	G	2	90	1	.5	3	200	32.2	"	34	100	Nil	140	"		5/8	At Anchor
0330	12S	19.3	128E	18.5	G	5	190	1	.5	3	200	33.2	/	34	100	Nil	138	/		6/8	" "
0530	12S	19.3	128E	18.5	G	LIGHT AIRS		1	.5	2	200	37	"	34	100	NIL	138	"		3/8	AT ANCHOR
0730	12S	19.4	128E	18.5	G	LIGHT AIRS		1	.5	2	200	37.9	"	34	100	NIL	138	"		3/8	AT ANCHOR
0930	12S	19.4	128E	18.5	G	LIGHT AIRS		1	.5	2	200	34.5	"	34	100	NIL	136	"		3/8	AT ANCHOR
1130	12S	19.3	128E	18.5	G	LIGHT AIRS		1	.5	2	200	31	/	34	100	Nil	136	/		2/8	" "
1330	12S	19.4	128E	18.5	G	LIGHT AIRS		1	.5	2	230	30.1	"	34	100	Nil	136	"		2/8	" "
1530	12S	19.4	128E	18.5	G	LIGHT AIRS		1	.5	2	230	29.5	"	34	1000	NIL	137	"		2/8	AT ANCHOR
1730	12S	19.3	128E	18.5	G	LIGHT AIRS		1	.5	2	230	29	/	34	100	Nil	138	/		2/8	" "
1930	12S	19.3	128E	18.5	G	LIGHT AIRS		1	.5	2	230	29	"	34	100	NIL	141	"		2/8	AT ANCHOR
2130	12S	19.3	128E	18.5	G	LIGHT AIRS		1	.5	2	230	29	"	34	100	NIL	141	"		2/8	AT ANCHOR
2330	12S	19.3	128E	18.5	G	LIGHT AIRS		1	.5	2	230	30	"	34	100	NIL	159			3/8	AT ANCHOR
'																					

CRUISE No
H.M.A.S. MANAWANUI
Date (UTC) 9/11/98

BRIDGE LOG

Time (UTC)	Position				Fix	Wind		Sea State	Swell			Air Temp °C		Sea Temp (bucket) °C	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direction True		Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct.		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	106	25.6	24.1	18.6	1084	13.1	080	6	125	7/8	EXAMPLE
0130	12S	19.4	128E	18.5	G	LIGHT AIRS		2	0.5	5	250	31.5	/	34	100	/	137	/	/	2/8	AT ANCHOR
0330	12S	19.3	128E	18.5	"	LIGHT AIRS		1	.25	3	070	32.5	/	34	100	/	136	/	/	3/8	" "
0530	12S	19.3	128E	18.5	G	LIGHT AIRS		1	.25	2	150	36	/	34	100	/	138	/	/	4/8	At Anchor
0730	12S	19.3	128.E	18.6	G	LIGHT AIRS		1	.2	2	200	34.1	"	34	100	"	139	"	"	5/8	AT ANCHOR
0930	12S	19.3	128E	18.6	G	LIGHT AIRS		1	.25	2	200	34	"	34	100	"	141	"	"	5/8	AT ANCHOR
1130	12S	19.4	128E	18.6	G	LIGHT AIRS		1	.25	2	200	31	"	34	100	"	140	"	"	5/8	At Anchor.
1330	12S	19.3	128E	18.5	G	LIGHT AIRS		2	.5	4	180	30	"	34	100	"	136	"	"	5/8	" "
1530	12S	19.3	128E	18.5	G	LIGHT AIRS		2	.5	4	180	30	"	34	100	"	137	"	"	4/8	AT ANCHOR
1730	12S	19.3	128E	18.5	G	LIGHT AIRS		2	.5	4	180	29	/	34	100	/	137	/	/	4/8	" "
1930	12S	19.3	128E	18.5	G	5	20	2	.5	3	20	28.7	/	34	100	/	137	"	"	4/8	" "
2130	12S	19.3	128E	18.5	G	LIGHT AIRS		2	.5	4	180	29	/	34	100	/	137	"	"	3/8	AT ANCHOR.
2330	12S	20.0	128E	18.6	G	LIGHT AIRS		2	0.5	5	020	31.5	/	34	102	/	230	/	/	3/8	Recovering [illegible]

CRUISE No
H.M.A.S. [illegible]
Date (UTC) 10 NOVEMBER 1998

BRIDGE LOG

Time (UTC)	Position				Fix	Wind			Swell			Air Temp °c		Sea Temp (hull) °c	Depth m	Ship Speed (kn)	Ship Course	Ship Set		Cloud Cover (eighths)	Remarks (eg station type, PDR on or off power failure etc)
	Lat.		Long.		Type	Speed (kn)	Direct True	Sea State	Height (m)	Period (sec)	Direction True	Dry	Wet					Speed (kn)	Direct		
03 45	32S	29.3	153E	18.6	G	12	123	2	3	10	108	25.6	24.1	18.6	10[illegible]	13.1	080	6	125	7/8	EXAMPLE
0130	12S	19.4	128E	17.8	G	Light Airs		2	0.5	5	020	350	/	34	100	/	000	253	0.2	4/8	Recovery of OBS Array
0330	12S	18.4	128E	15.2	G	Light Airs		2	.5	5	020	29.5	/	34	100	1.5	348	/	/	7/8	DRIFTING.
0530	12S	[illegible].2	128E	[illegible]	G	Light Airs		3	.5	5	150	29	/	34	100	/	134	/	/	5/8	AT ANCHOR
0730	12S	19.9	128E	18.8	G	0.8	SW	3	.5	5	030	31.8	″	34.0	100	″	135	″	″	6/8	AT ANCHOR
0930	12S	19.9	128E	18.8	G	5	NE	3	.5	5	010	30.1	″	34	100	″	131	″		6/8	AT ANCHOR
1130	12S	19.9	128E	18.8	G	5	NE	3	.5	5	060	29.0	″	34	100	″	130	″	/	6/8	AT ANCHOR
1330	12S	19.9	128E	18.8	G	5	NE	3	.5	5	060	26.0	/	34	100	/	132	/		0/8	At ″
1530	12S	19.9	128E	18.8	G	5	NE	3	.5	5	060	28.5	″	34	100	″	134	″		6/8	AT ANCHOR
1730	12S	19.9	128E	18.9	G	5	NE	3	.5	5	060	28.5	″	34	100	″	133	″		6/8	At ANCHOR.
1930	12S	19.[illegible]	128E	18.9	G	Light Airs		2	.5	5	080	29	″	34	100	″	133	″	″	4/8	″ ″
2130	12S	19.9	128E	18.9	G	Light Airs		2	.5	5	080	28	″	34	100	″	133	″	″	4/8	″ ″
2330	12S	19.8	128E	18.9	G	Light Airs		2	0.3	5	030	30	″	34	100	″	145	/	/	6/8	AT ANCHOR
0130	12S	19.9	128E	18.9	G	15	SE	3	.7	5	310	26.5	″	34	100	″	110	″	″	8/8	AT ANCHOR
0330	12S	19.9	128E	18.9	G	15	SE	2	.5	5	310	27	″	34	100	″	131	″	″	7/8	AT ANCHOR
0530	12S	19.[illegible]	128E	18.9	G	5	NE	2	.5	5	310	30	/	34	100	/	131	/		7/8	″ ″

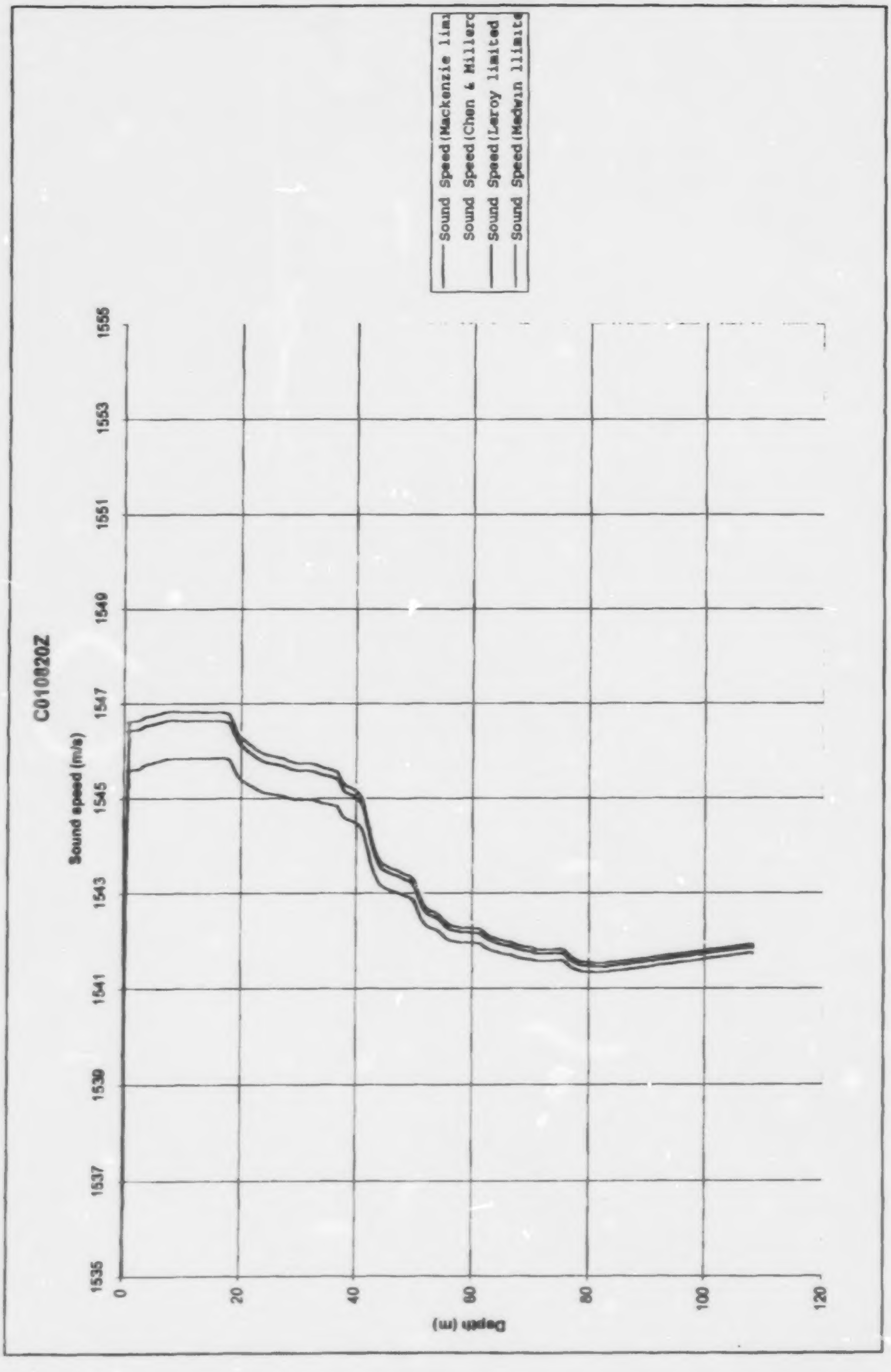
5. SOUND SPEED PROFILES

This section contains the sound speed profiles obtained from Southern Surveyor and Pacific Conquest. The profiles were obtained from CTD (Conductivity-Temperature-Depth) records and XBT (eXpendable BathyThermograph) records. A log sheet containing file numbers, dates and locations precede each category of profiles. The profiles are displayed in the figures following each log sheet.

Only the figures are shown in this report. The complete data are found on the RDS-2 environmental information CD (Excel spreadsheets).

Table 2. Time and location of CTD records from FRV Southern Surveyor.

CTD #	Filename	Date	Time (UTC)	Latitude	Longitude	Water depth
1	C010820Z	1/11/98	08:20	12°26.3180	128°20.19	??
2	C020512Z	2/11/98	05:12	11°57.505	129°26.954	65 m


C010820Z
Sound speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
Depth (m)
0
20
40
60
80
100
120
Sound Speed(Mackenzie limi
Sound Speed(Chen & Millerc
Sound Speed(Leroy limited
Sound Speed(Medwin llimite

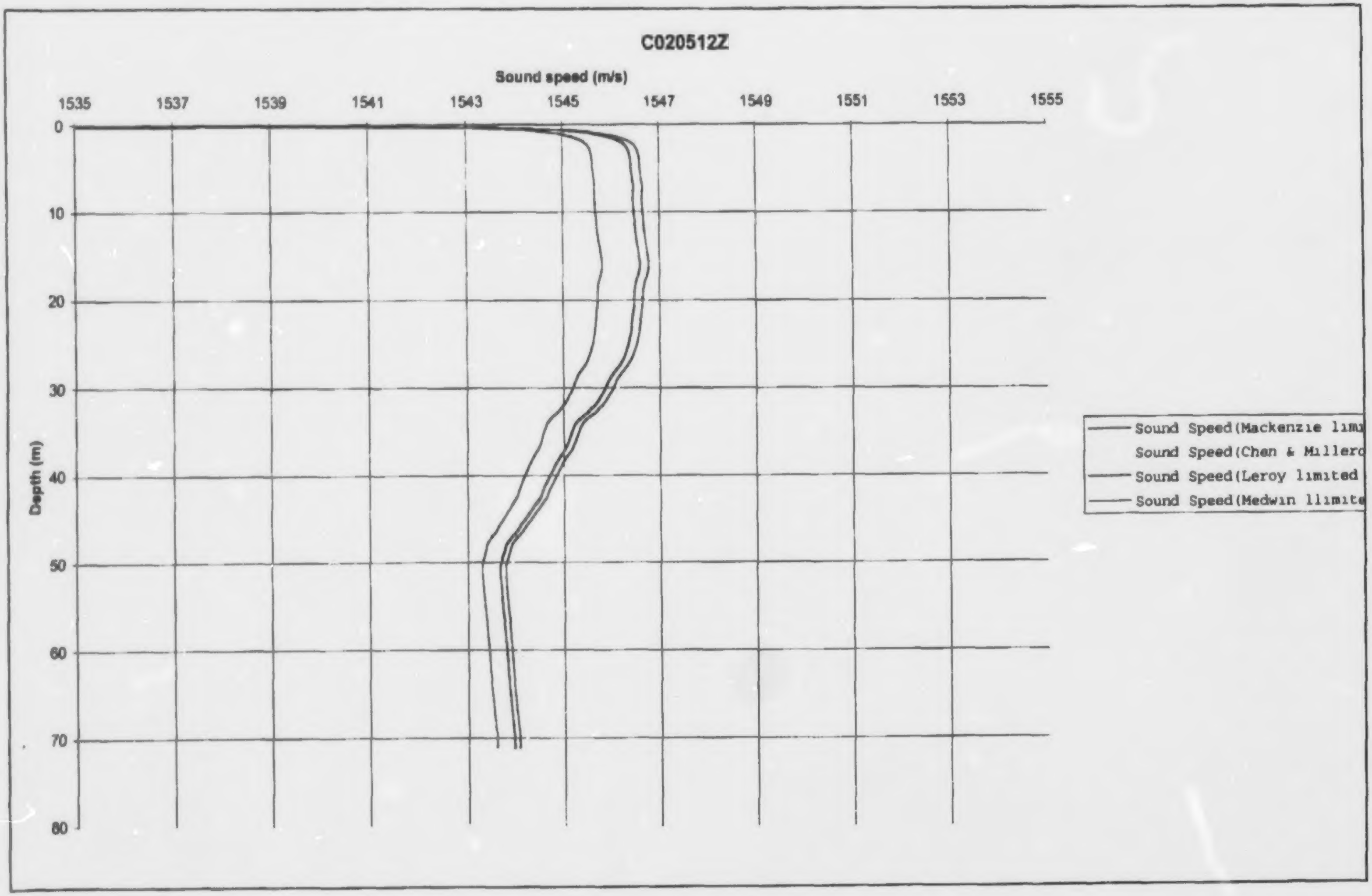
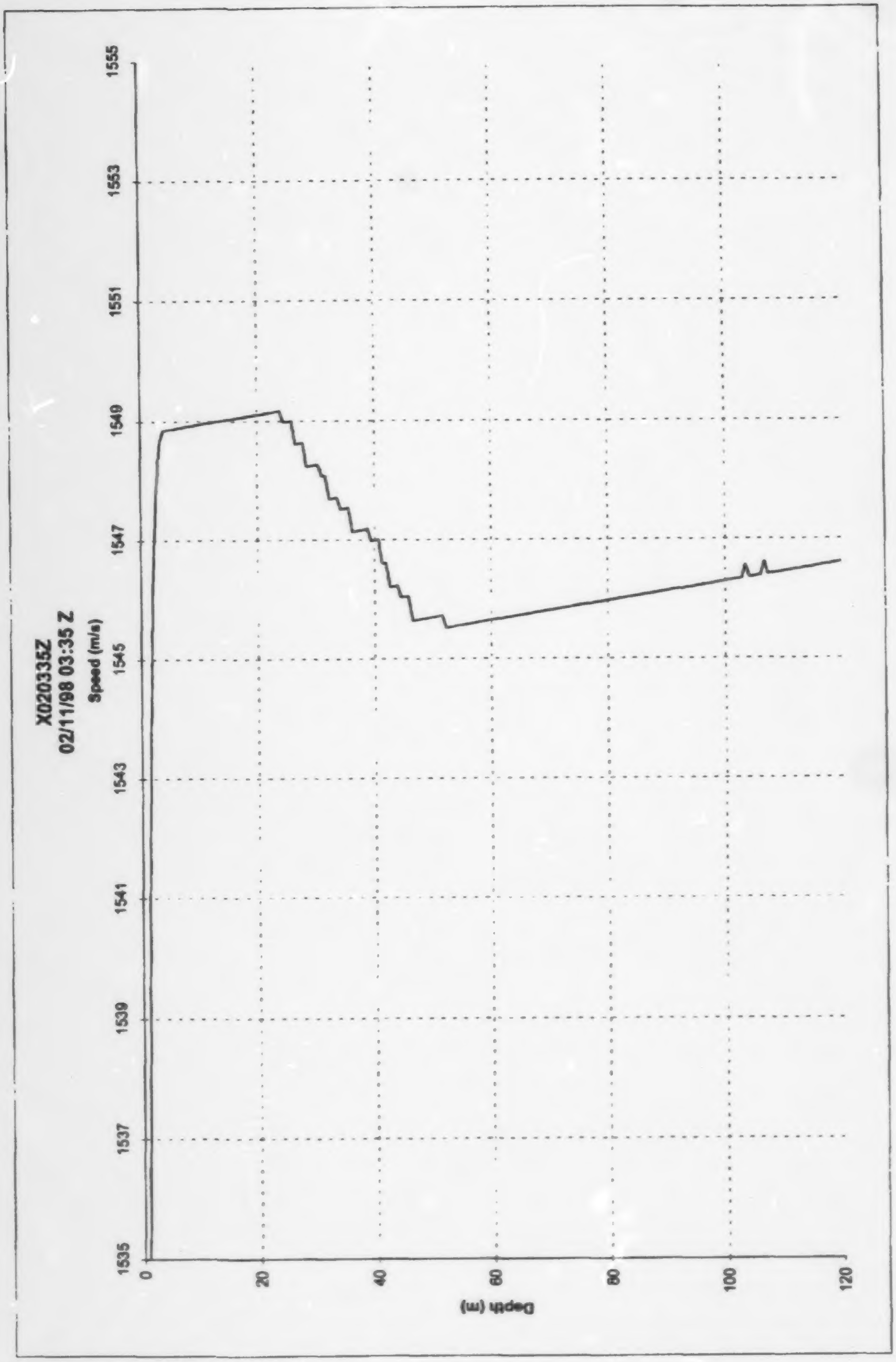
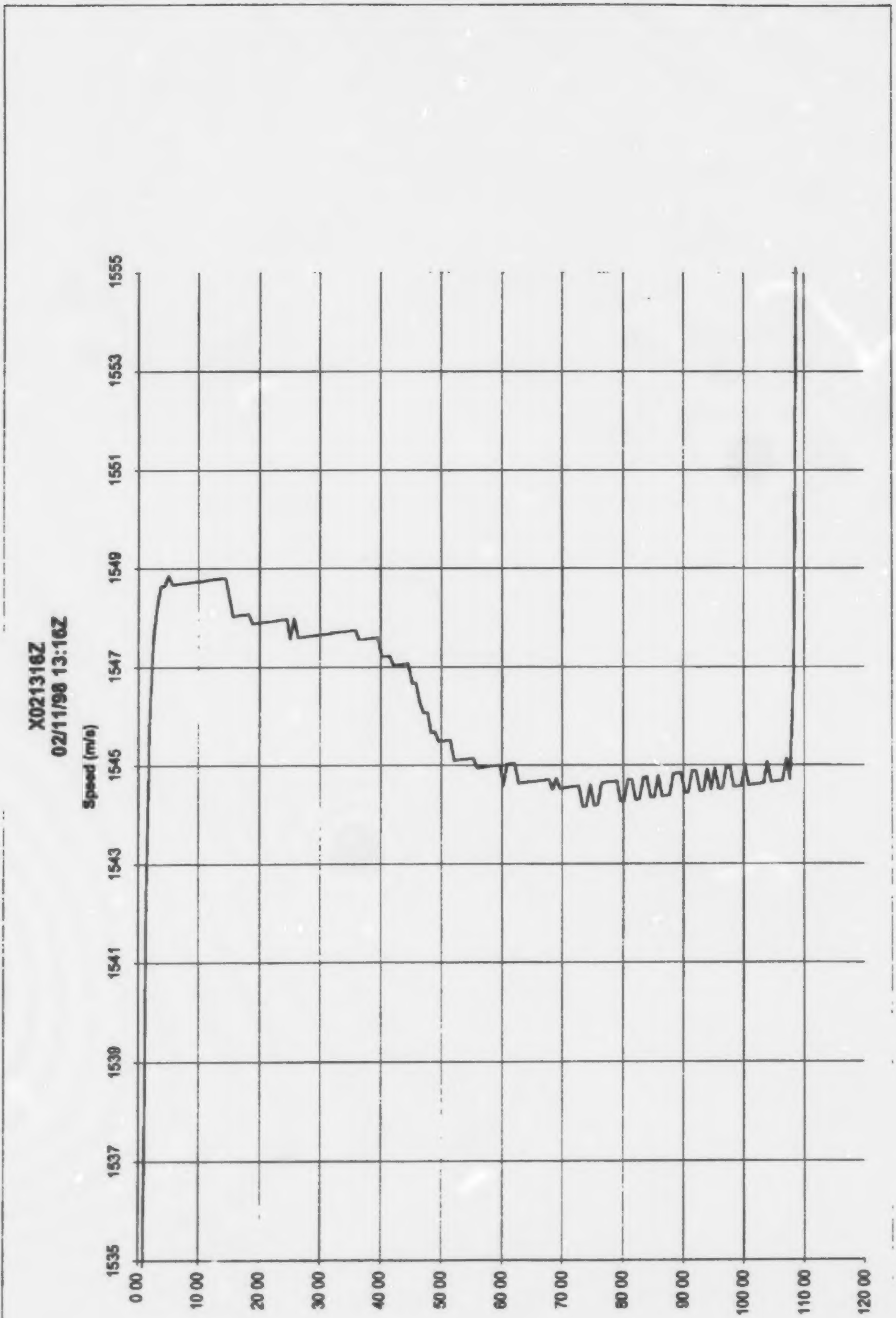
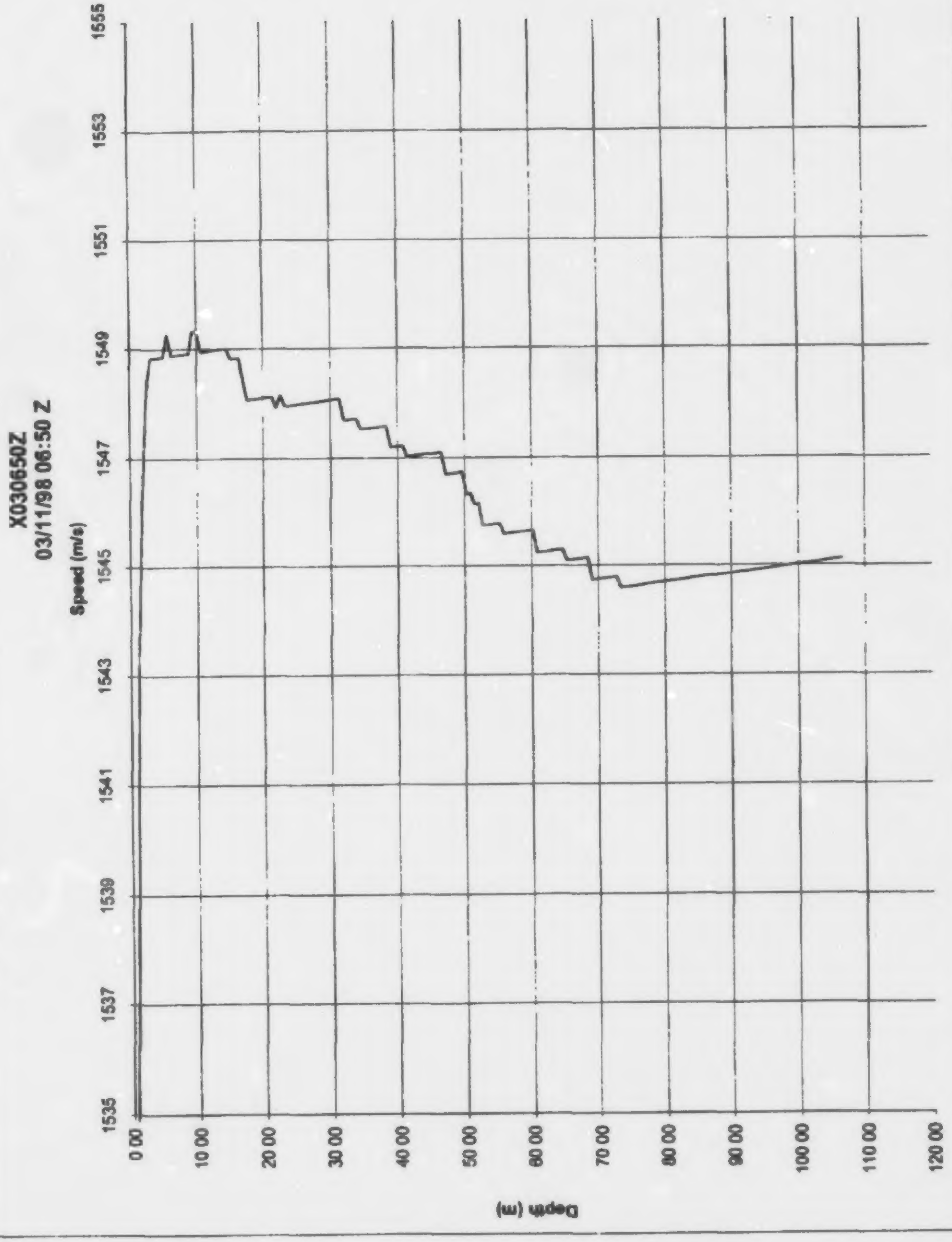

C020512Z
Sound speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
Depth (m)
0
10
20
30
40
50
60
70
80
Sound Speed(Mackenzie lim
Sound Speed(Chen & Millero
Sound Speed(Leroy limited
Sound Speed(Medwin llimite

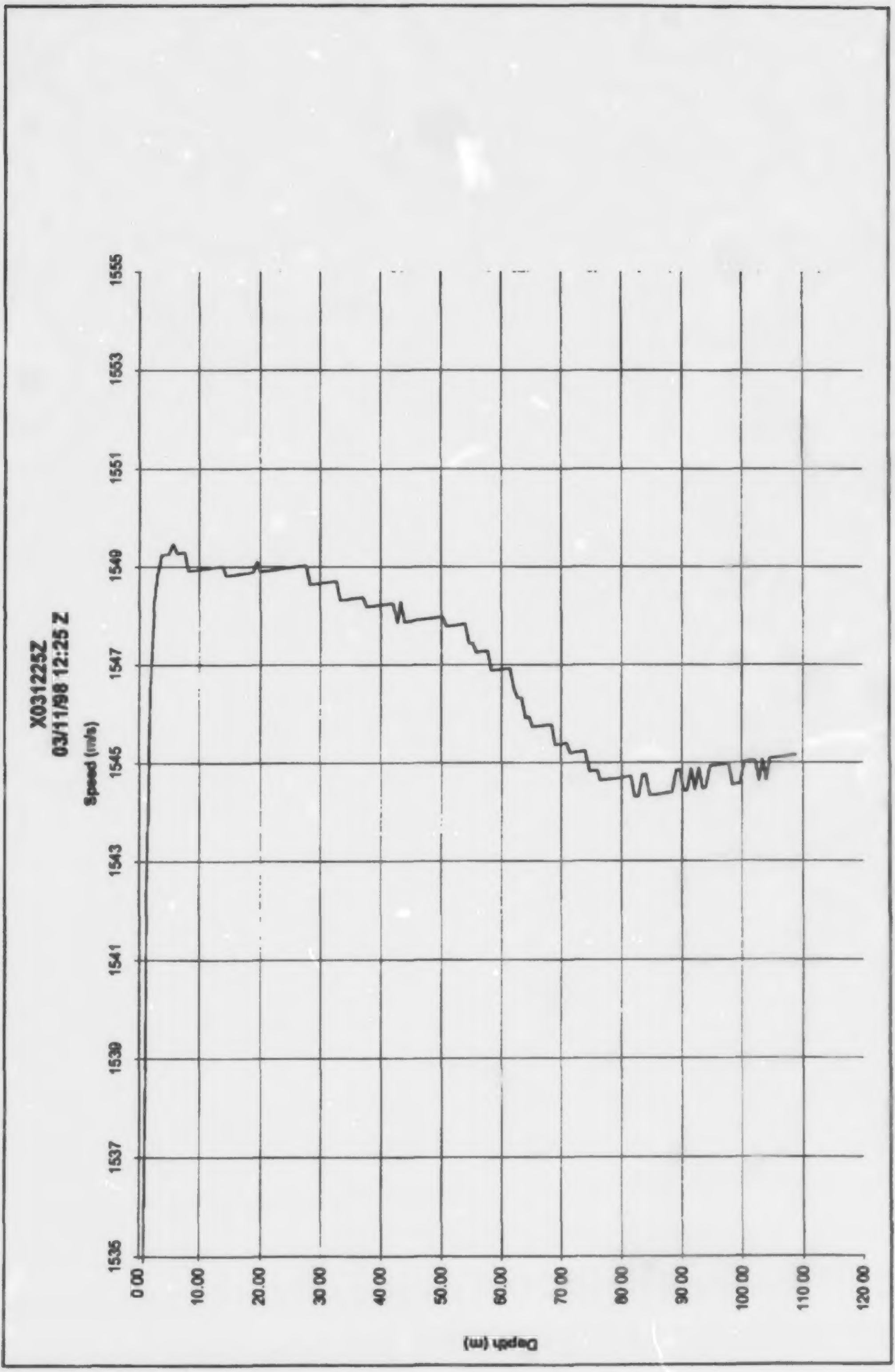
Table 3. Time and location of XBT records from FRV Southern Surveyor.

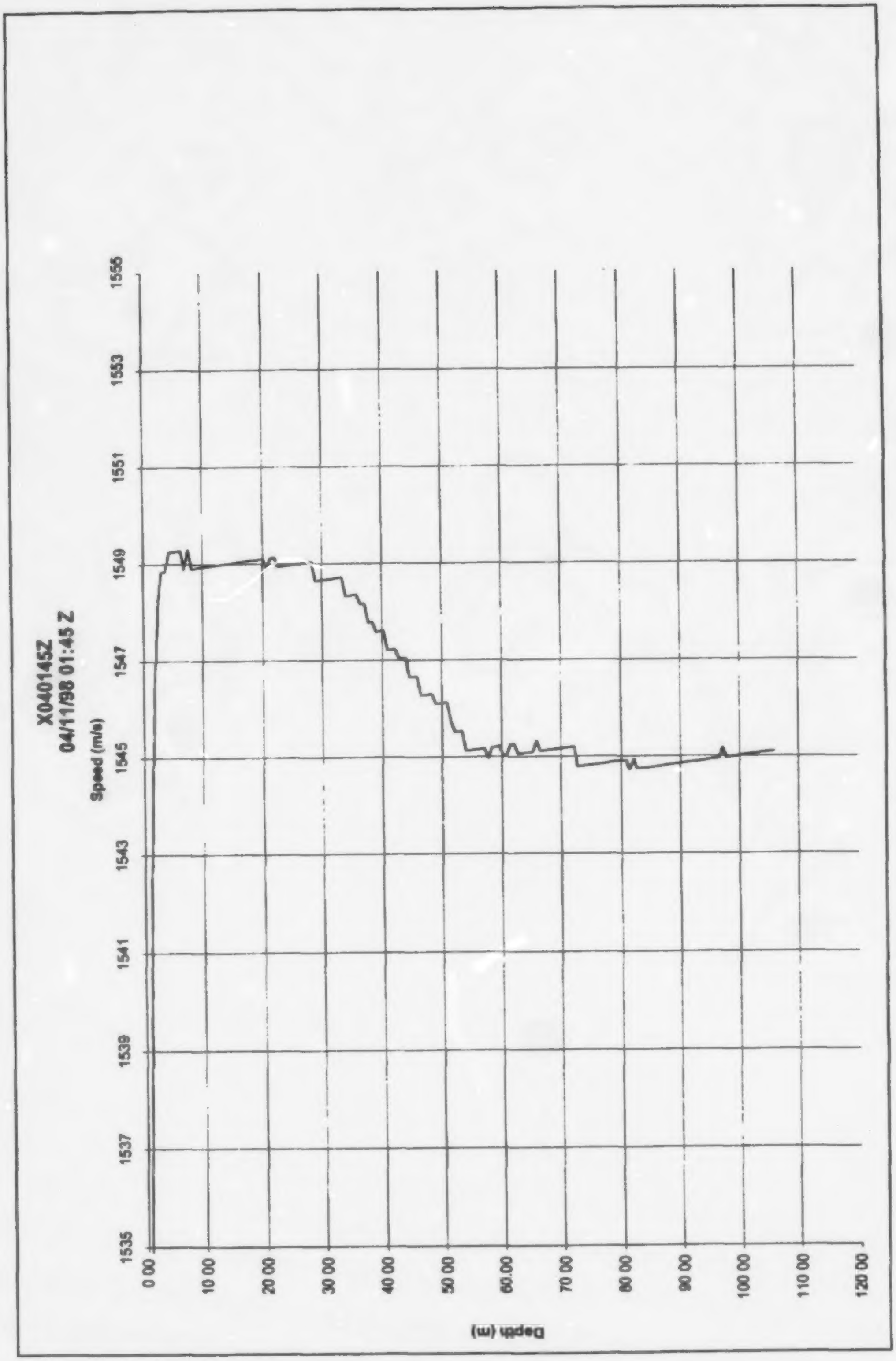
XBT #	Filename	Date	Time (UTC)	Latitude	Longitude	Water depth
1	X020335Z	2/11/98	03:35	11°59.679	129°17.543	65 m
2	X021316Z	2/11/98	13:16	12°19.8335	128°19.8113	101
3	X030650Z	3/11/98	06:50	12°20.3255	128°21.7283	107
4	X031225Z	3/11/98	12:25	12°16.6600	128°20.5280	106
5	X040145Z	4/11/98	01:45	12°19.3316	128°22.6660	105
6	X040345Z	4/11/98	03:45	12°16.8375	128°23.5973	105
7	X050440Z	5/11/98	04:40	13°09.4309	127°55.4383	???
8	X060145Z	6/11/98	01:45	12°19.7679	128°18.3580	106
9	X060425Z	6/11/98	04:25	12°21.0085	128°20.894	105
10	X060725Z	6/11/98	07:25	12°17.5526	128°24.8473	105
11	X061115Z	6/11/98	11:15	12°19.2706	128°22.1872	107
12	X071245Z	7/11/98	12:45	12°18.	128°18.7877	105
13	X080645Z	8/11/98	06:45	12°20.4289	128°23.1169	???
14	X081300Z	8/11/98	13:00	12°21.0086	128°22.4660	107
15	X090750Z	9/11/98	07:50	12°19.0140	128°24.4770	105
16	X100250Z	10/11/98	02:50	12°22.2769	128°20.7900	???
17	X101201Z	10/11/98	12:01	12°22.4680	128°21.3140	107

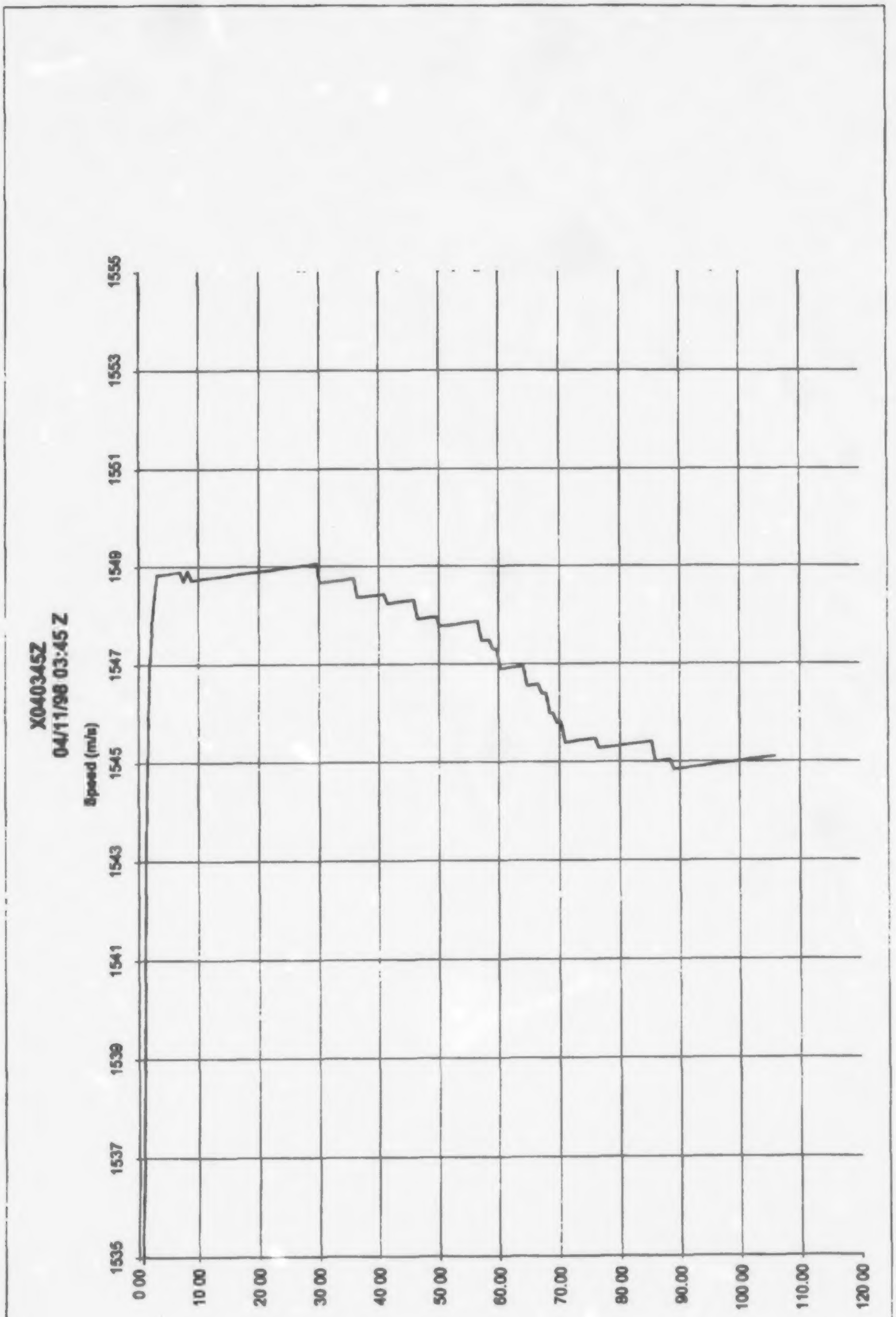

X020335Z
02/11/98 03:35 Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
Depth (m)
0
20
40
60
80
100
120

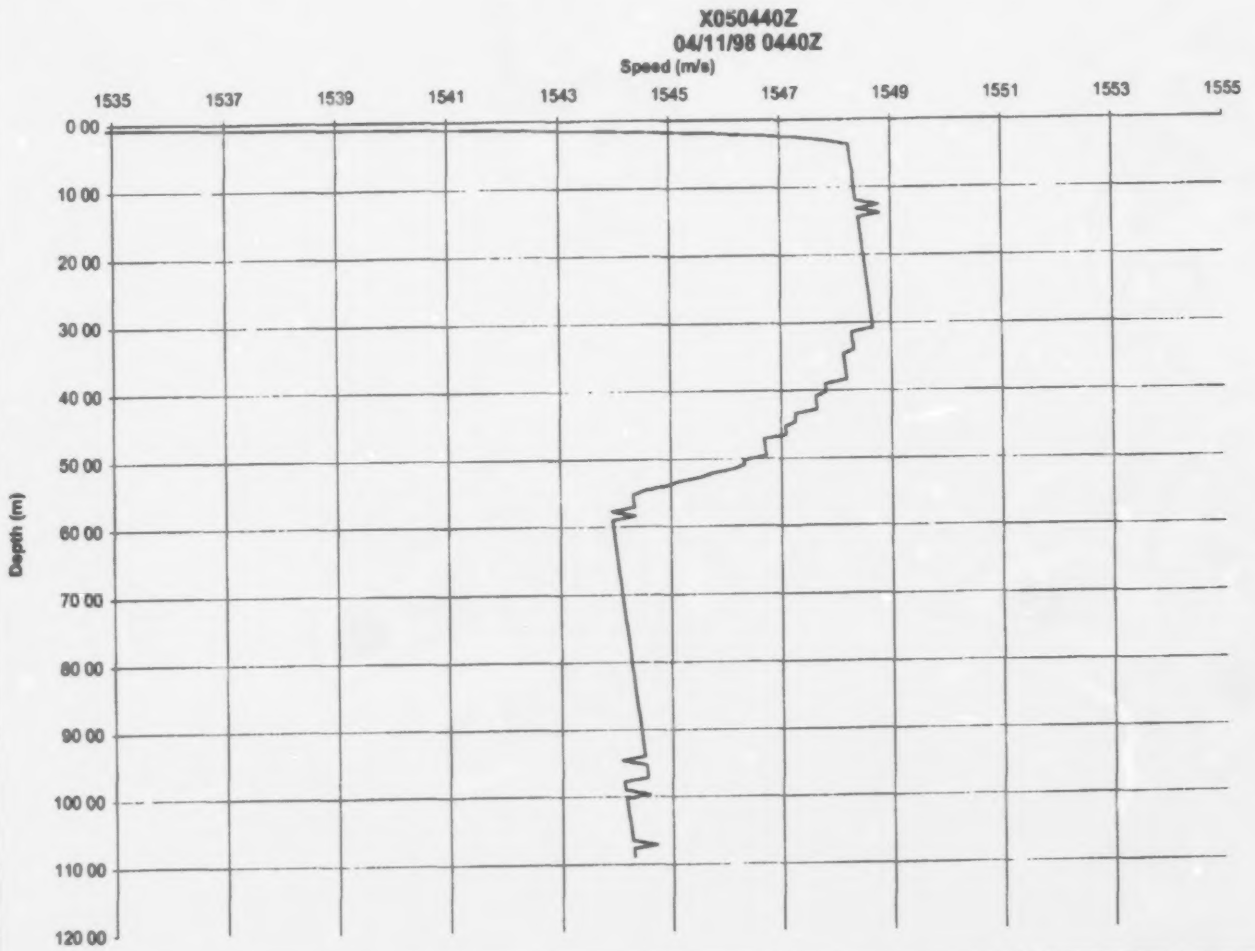

X021316Z
02/11/98 13:16Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00
Depth (m)

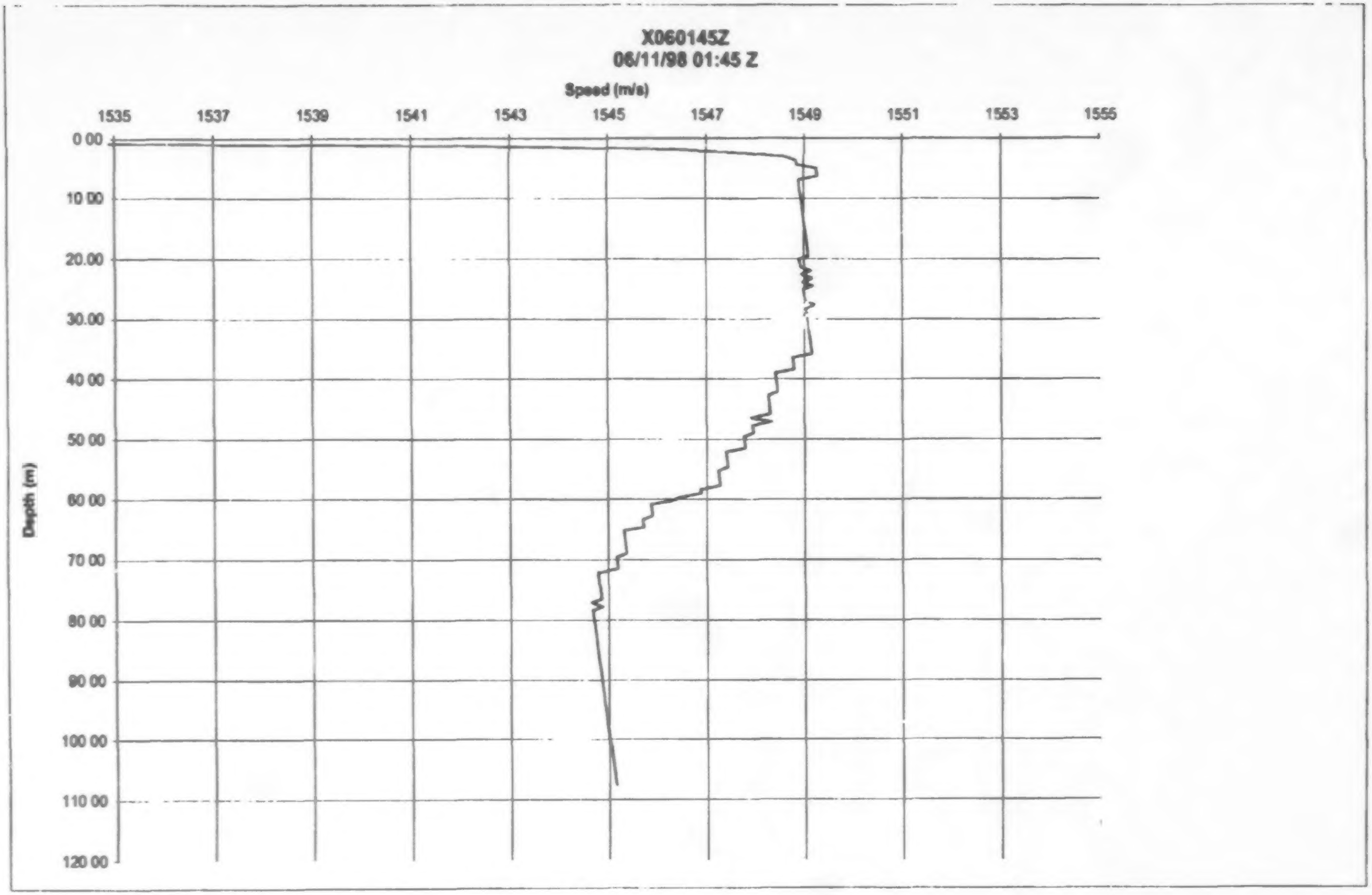

X030650Z
03/11/98 06:50 Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
Depth (m)
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00

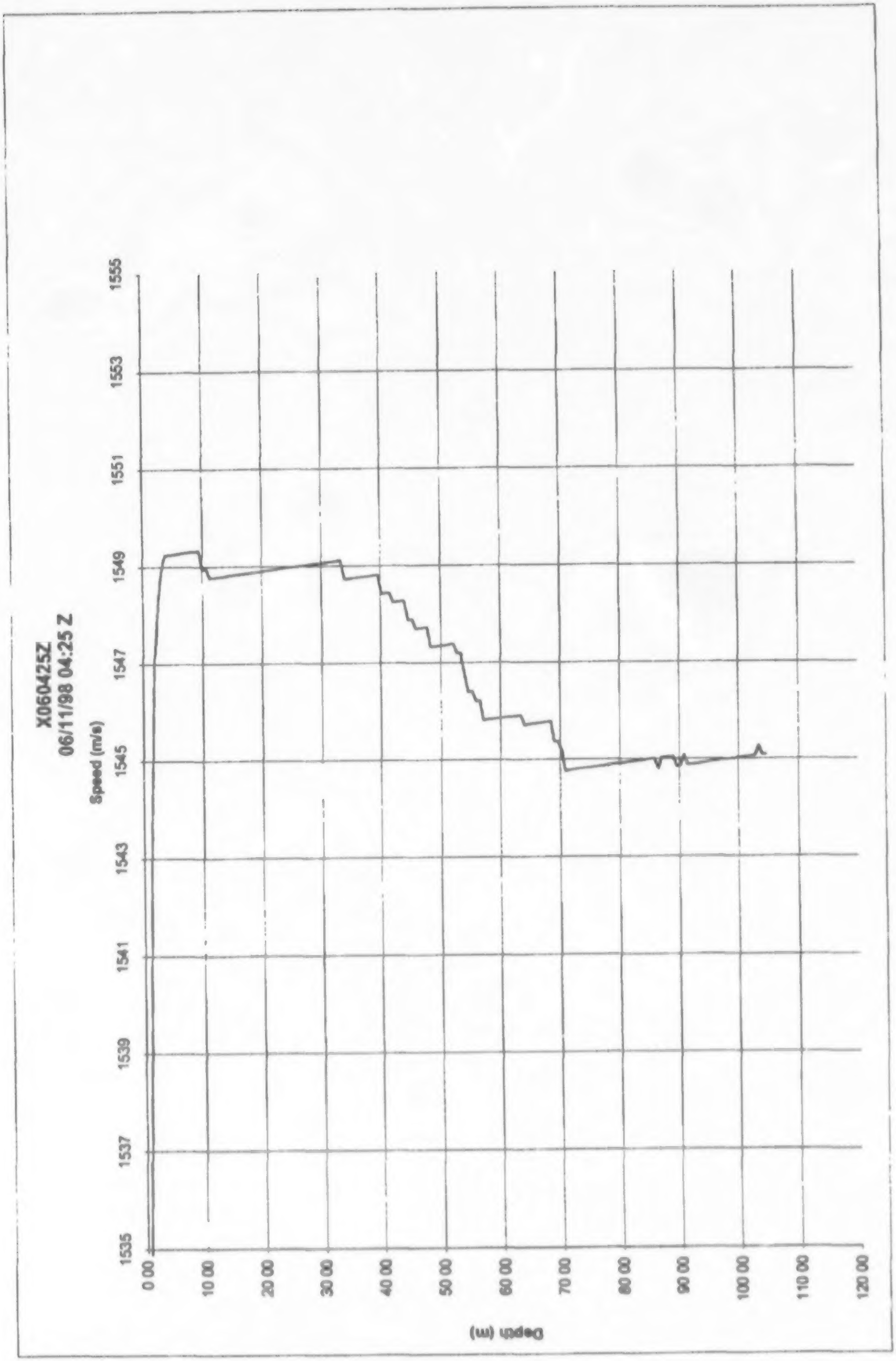

X0312225Z
03/11/98 12:25 Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
Depth (m)
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00

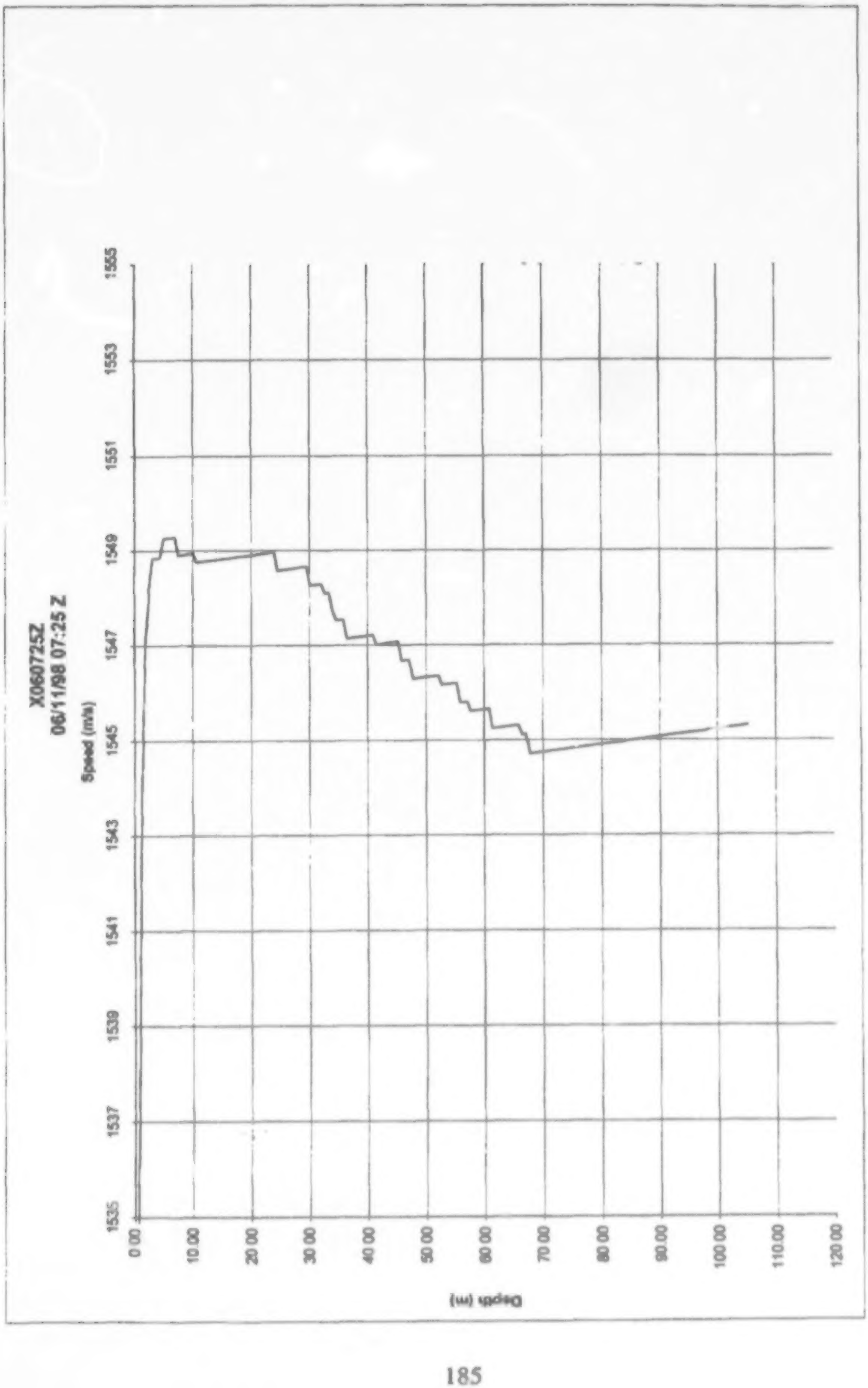

X040145Z
04/11/98 01:45 Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
Depth (m)
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00

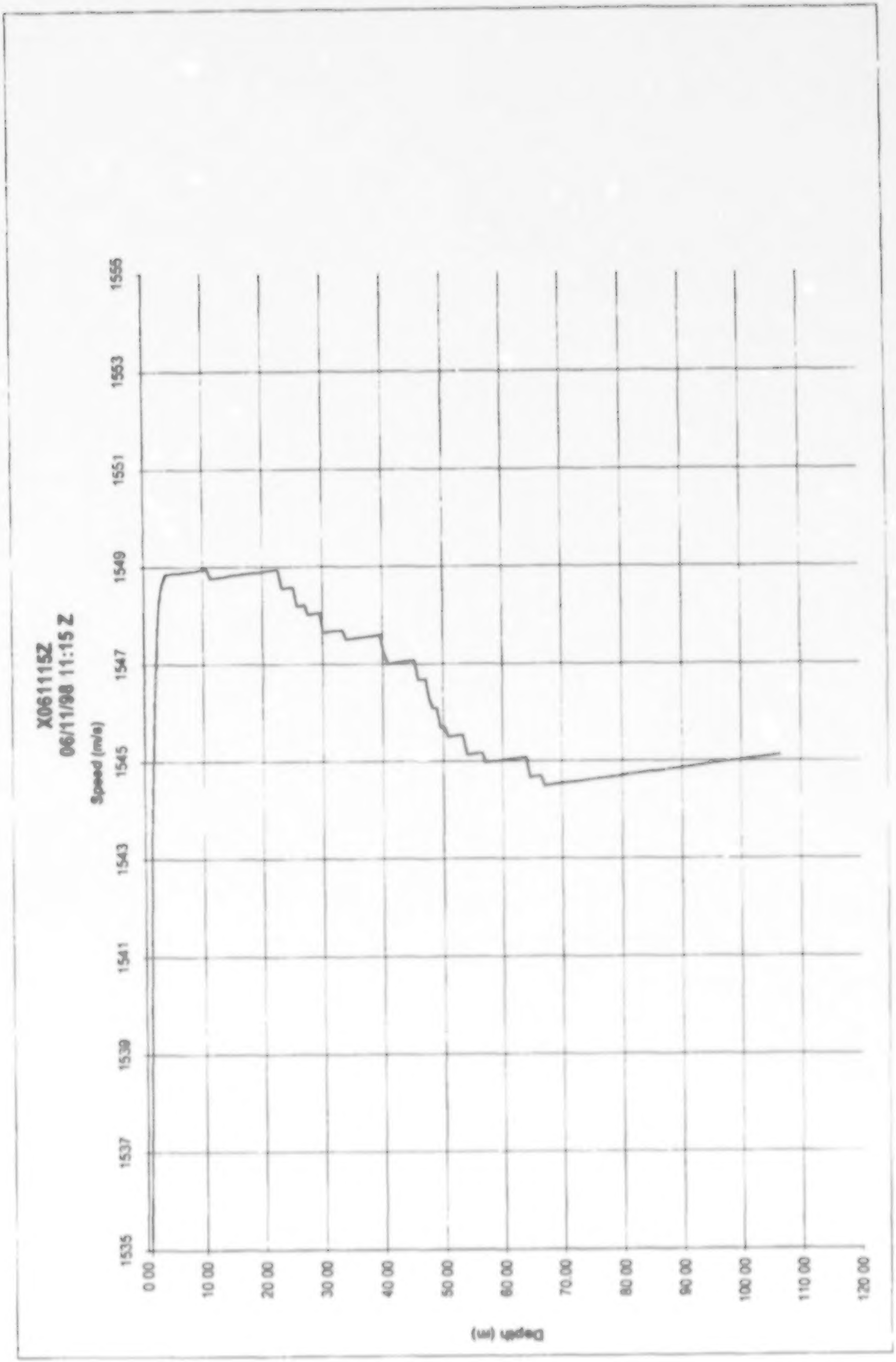

X040345Z
04/11/98 03:45 Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
Depth (m)
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00


X050440Z
04/11/98 0440Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
Depth (m)
0 00
10 00
20 00
30 00
40 00
50 00
60 00
70 00
80 00
90 00
100 00
110 00
120 00

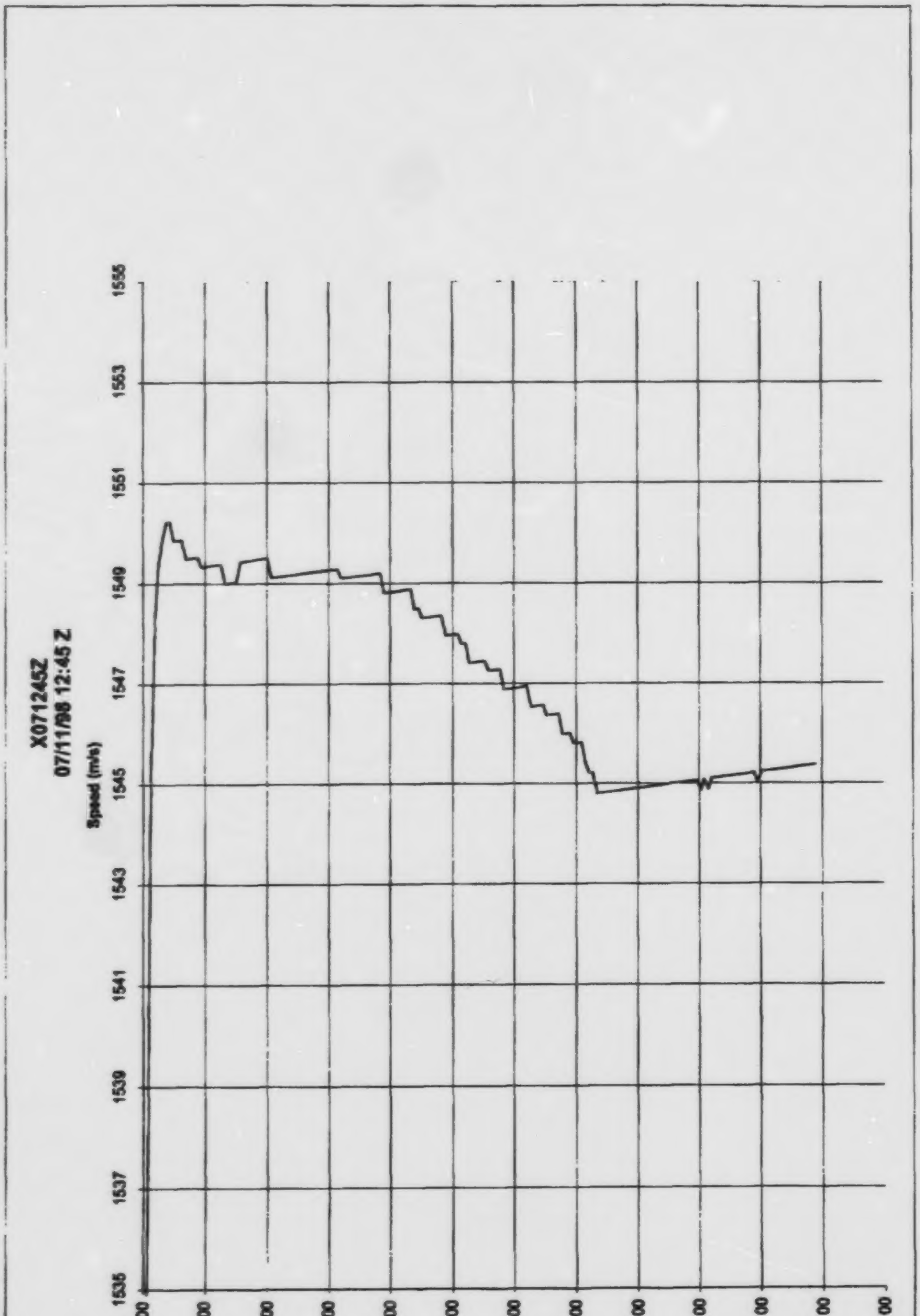

X060145Z
06/11/98 01:45 Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
Depth (m)
0 00
10 00
20.00
30.00
40 00
50 00
60 00
70 00
80 00
90 00
100 00
110 00
120 00

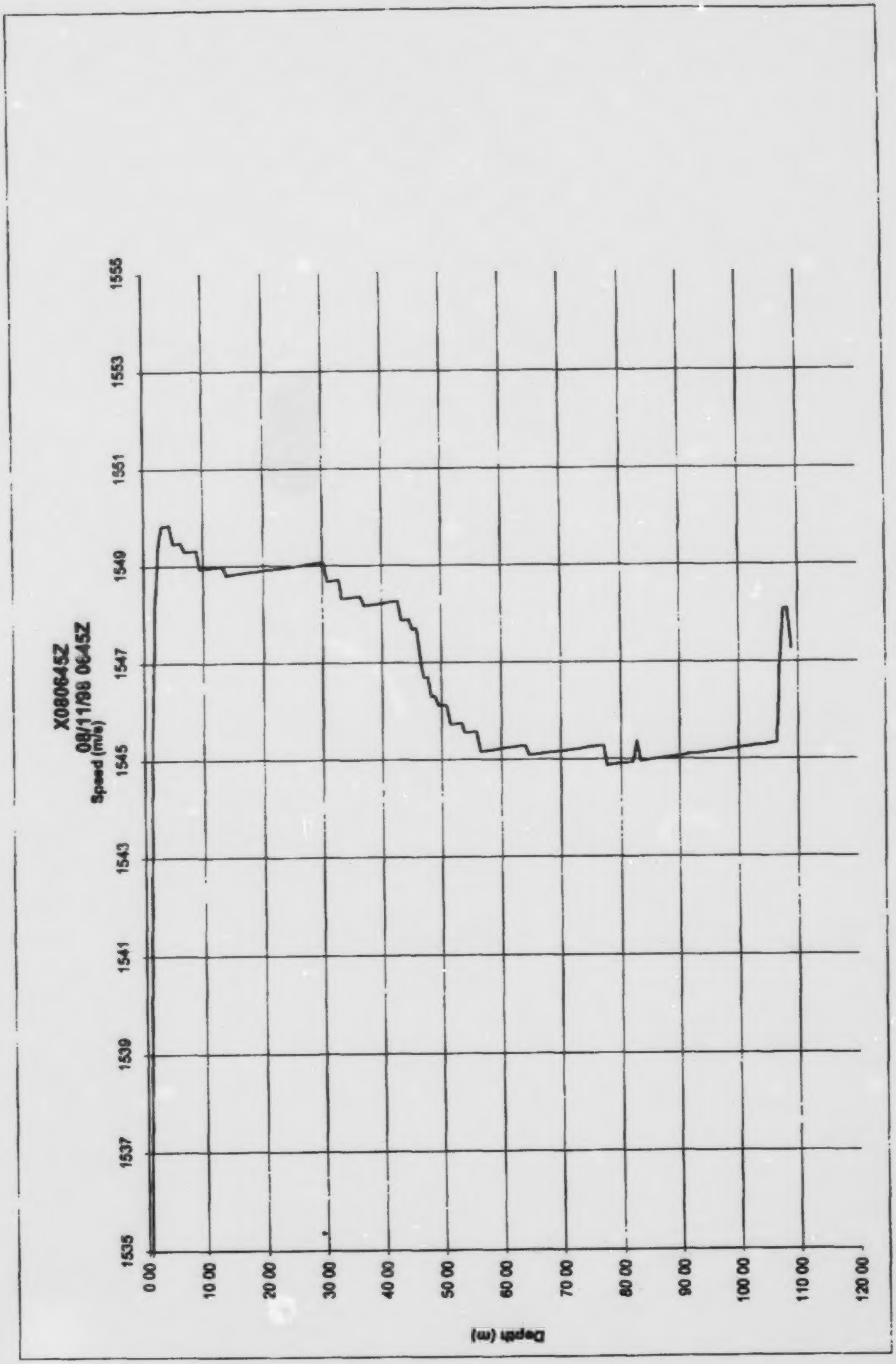

X060425Z
06/11/98 04:25 Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
Depth (m)
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00

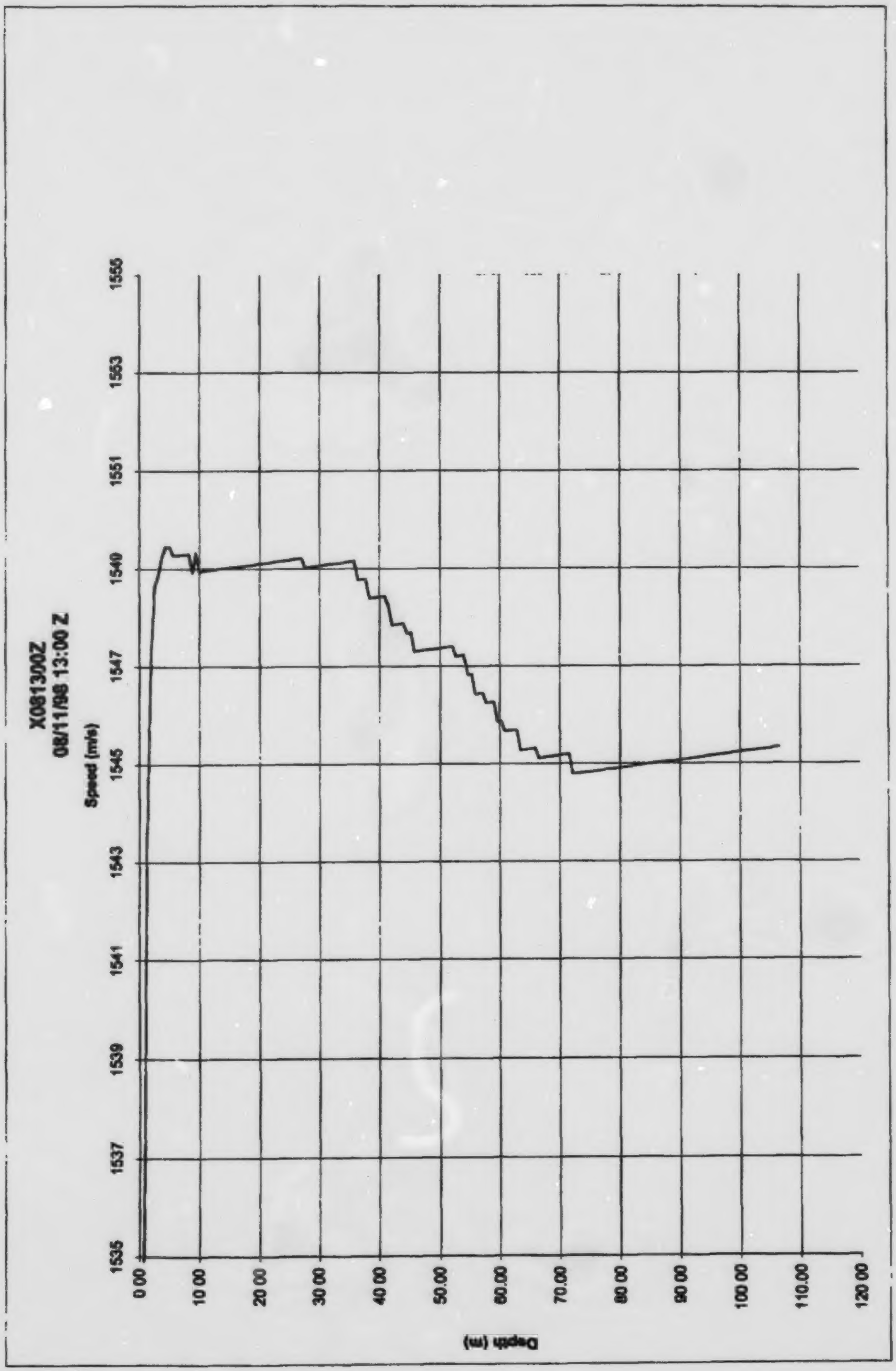

X060725Z
06/11/98 07:25 Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
Depth (m)
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00



X0611115Z
06/11/98 11:15 Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
Depth (m)
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00


X071245Z
07/11/98 12:45 Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00
Depth (m)


X080645Z
08/11/98 0645Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
Depth (m)
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00


X081300Z
08/11/98 13:00 Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
Depth (m)
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00

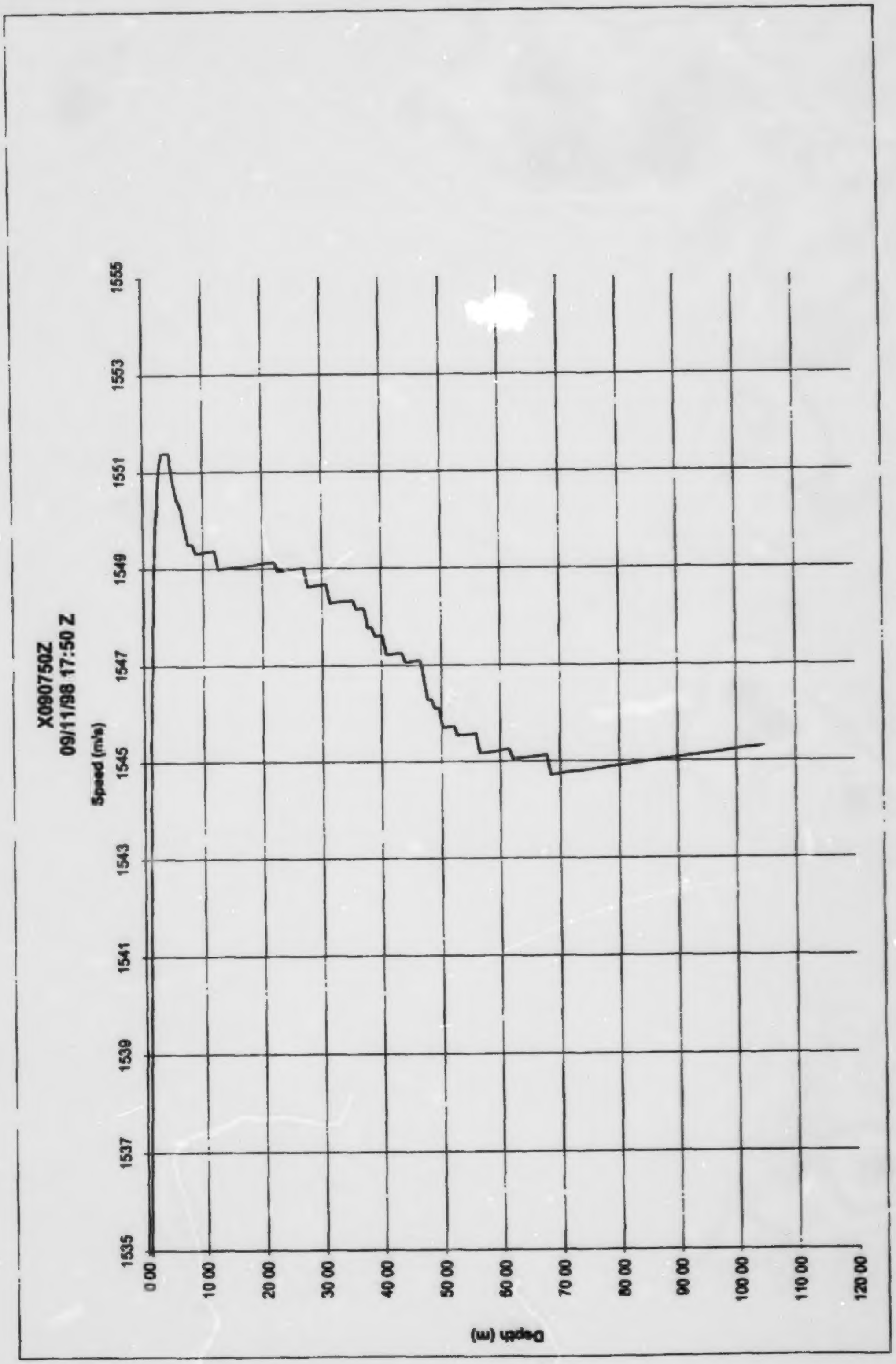
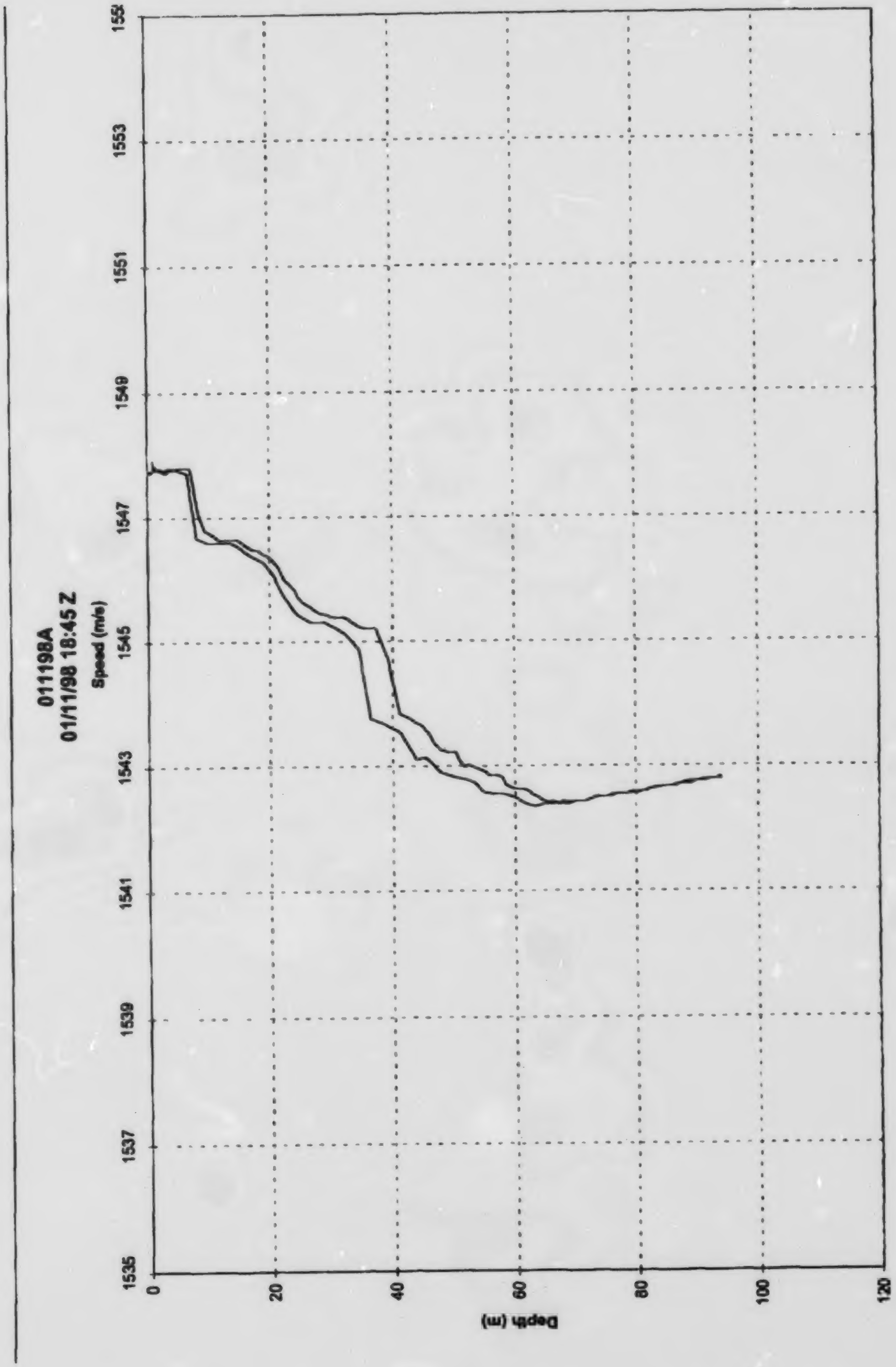
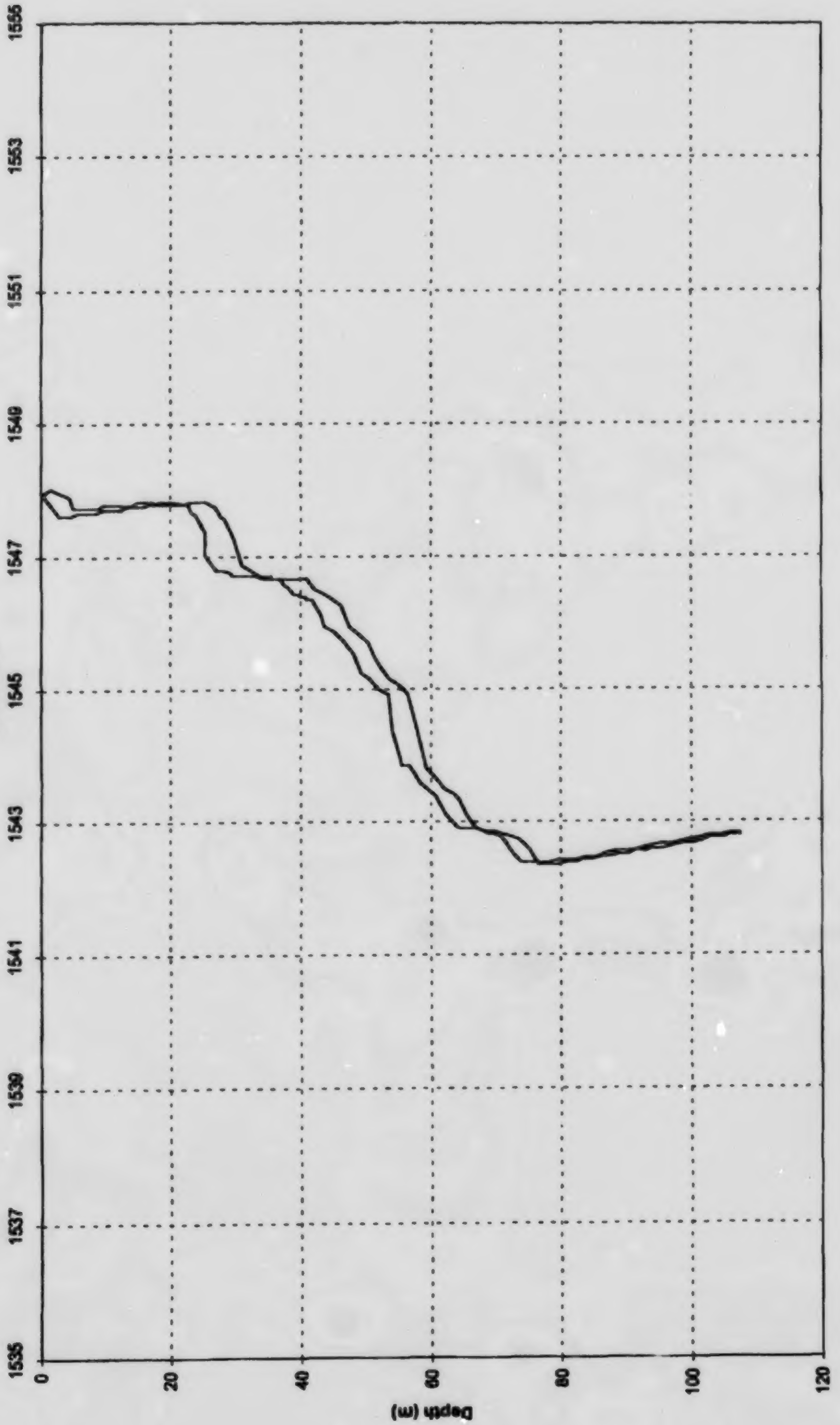

X090750Z
09/11/98 17:50 Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
110.00
120.00
Depth (m)

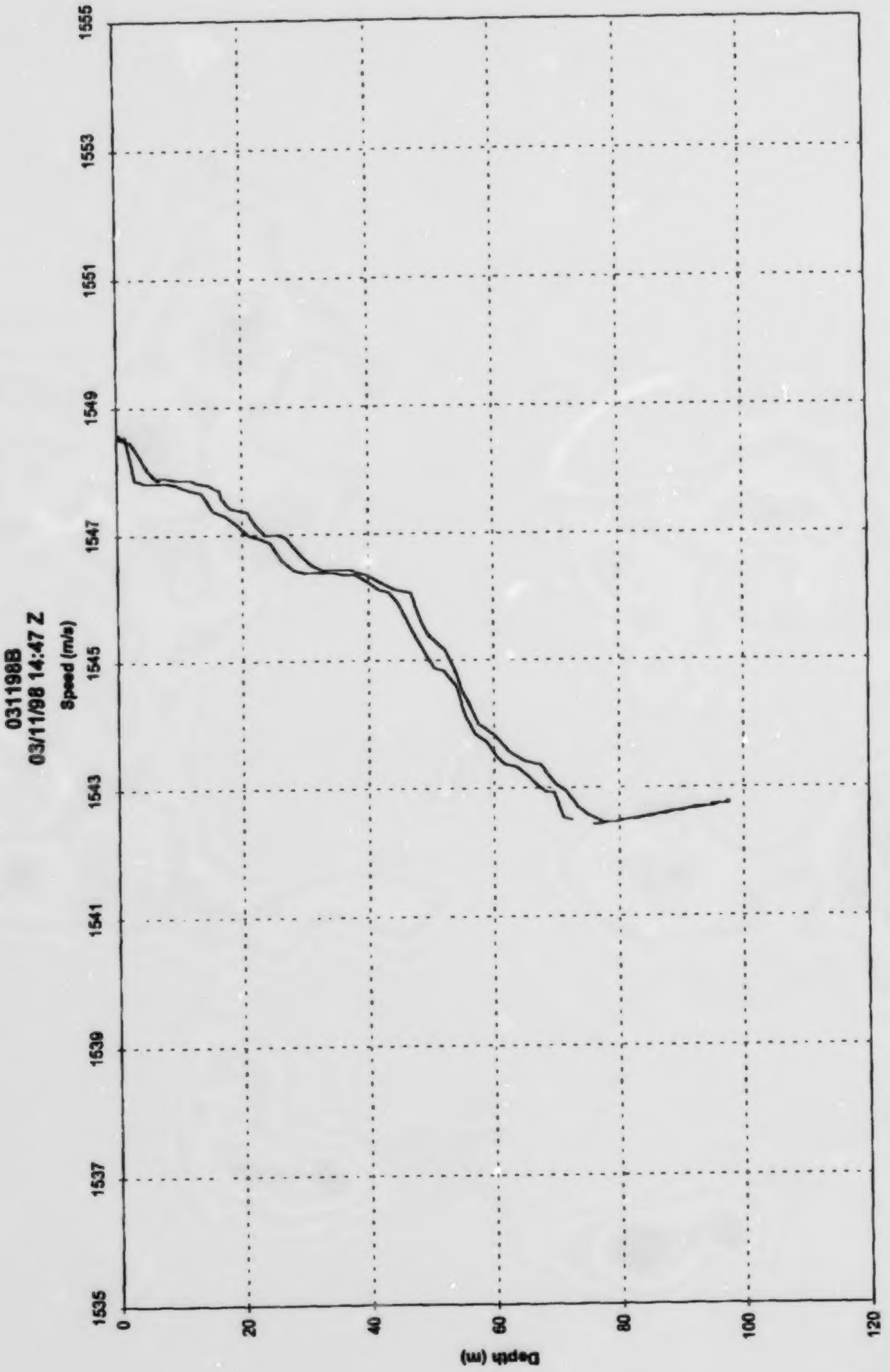
Table 4. Time and location of CTD records from TSMV Pacific Conquest.

XBT #	Filename	Date	Time (UTC)	Latitude	Longitude
1	SVP1	1/11/98	18:45	12°19.590	128°18.568
2	SVP2	3/11/98	10:23	12°20.910	128°21.060
3	SVP3	3/11/98	14:47	12°16.703	128°22.421
4	SVP4	3/11/98	18:00	12°19.962	128°21.115
5	SVP5	8/11/98	20:09	12°19.479	128°18.494
6	SVP6	9/11/98	11:35	12°19.014	128°18.267
7	SVP7	9/11/98	20:37	12°19.195	128°17.571


011198A
01/11/98 18:45 Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
155
Depth (m)
0
20
40
60
80
100
120

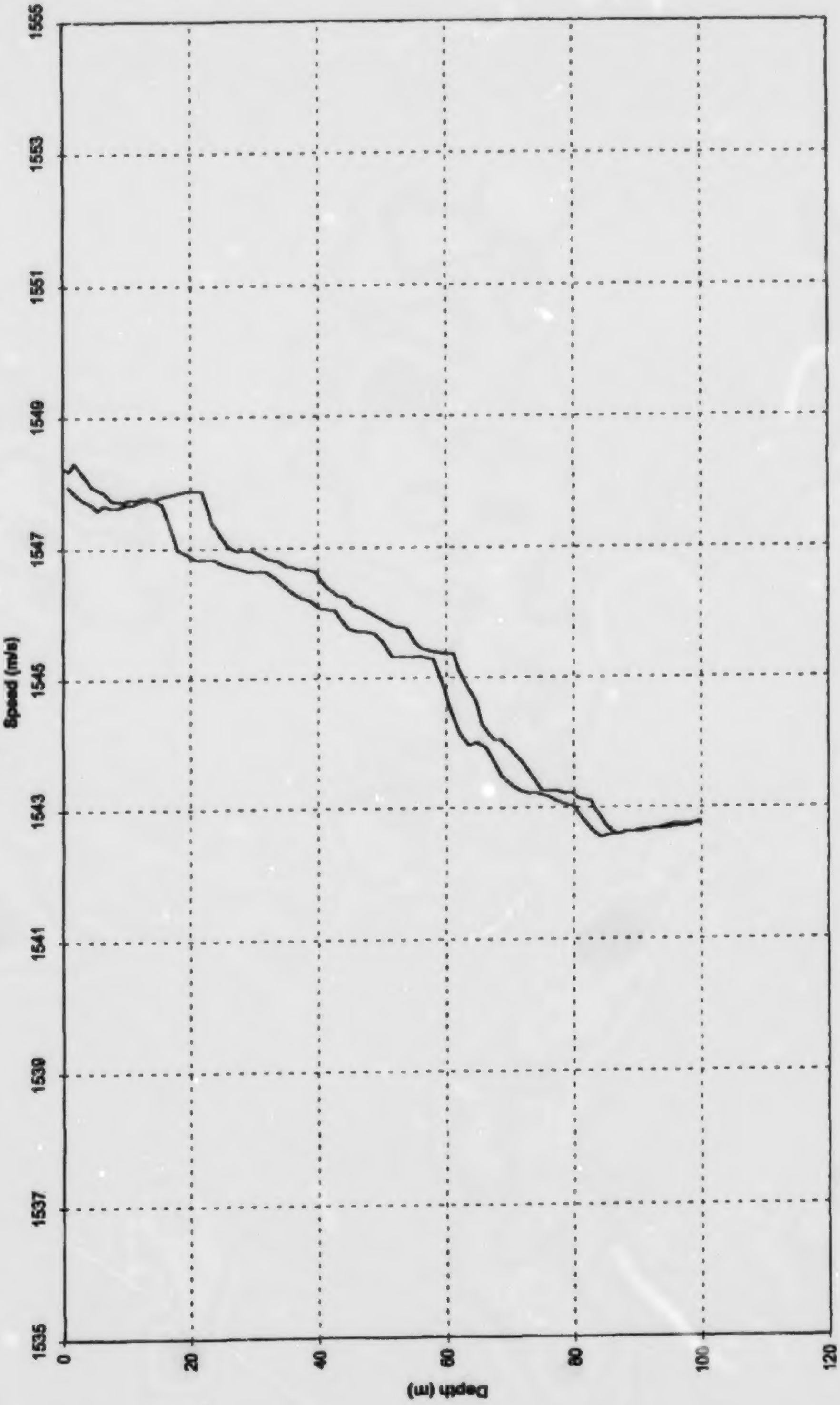


031198A
03/11/98 10:23 Z

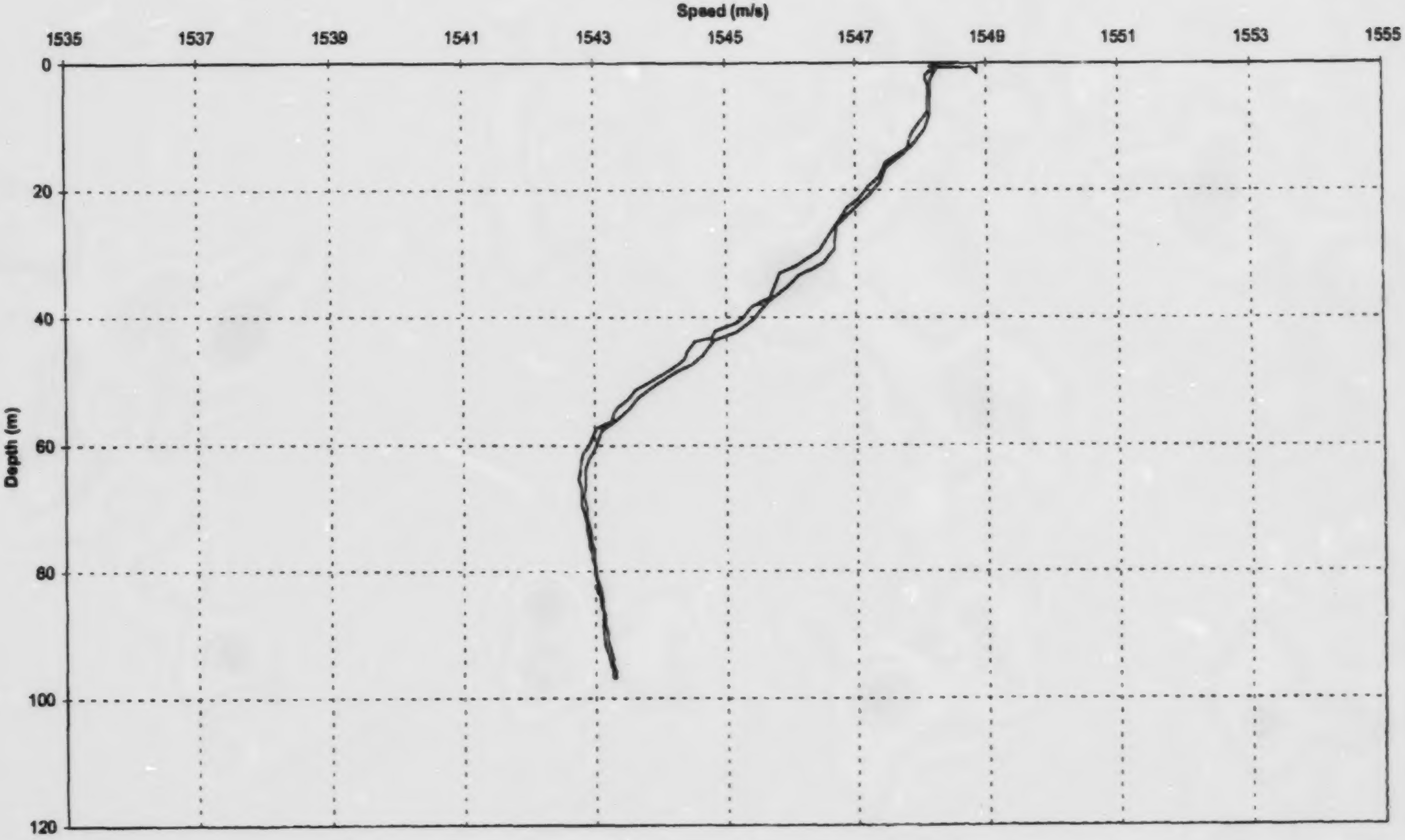


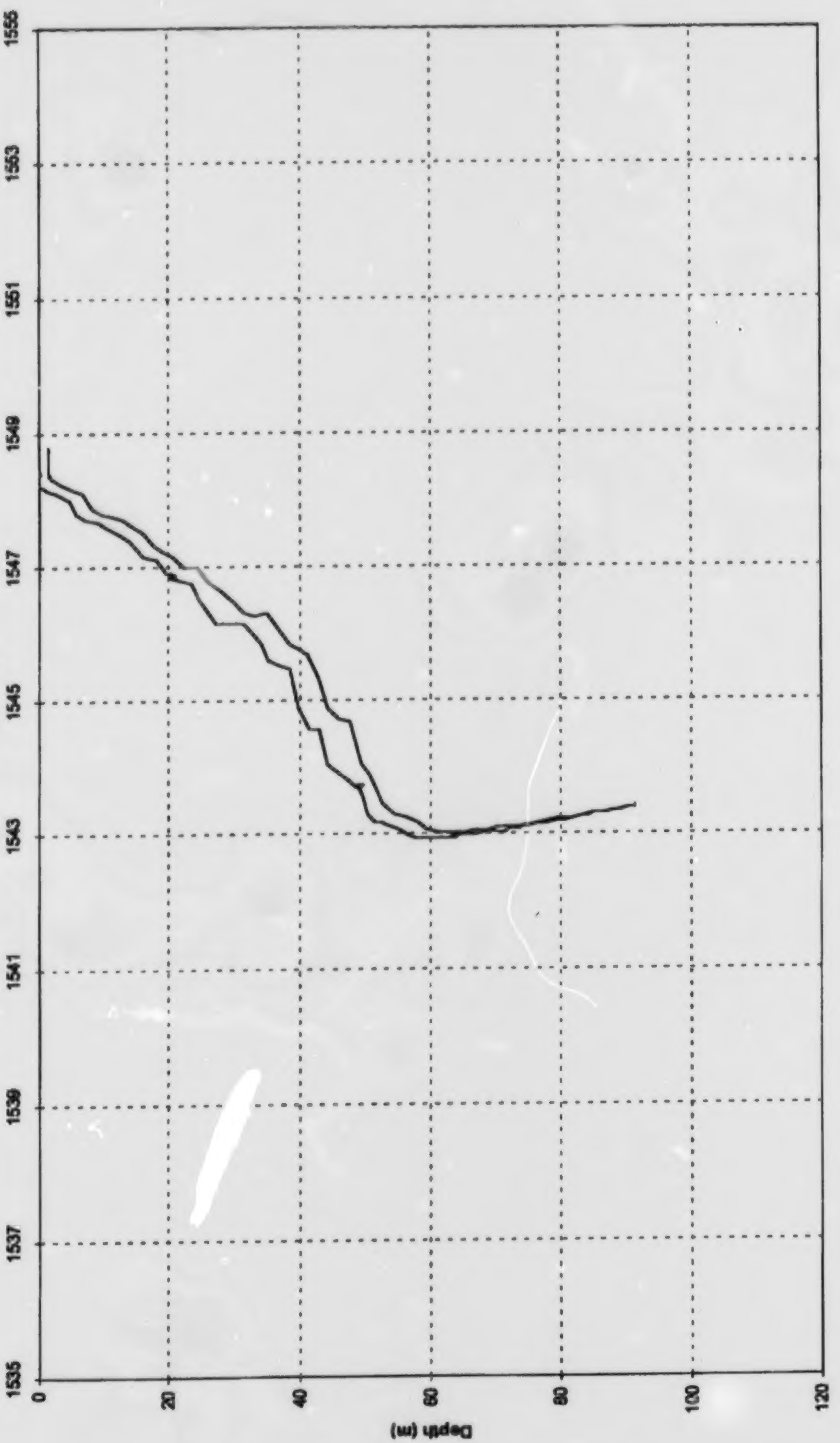
031198B
03/11/98 14:47 Z

031198C
03/11/98 18:00 Z

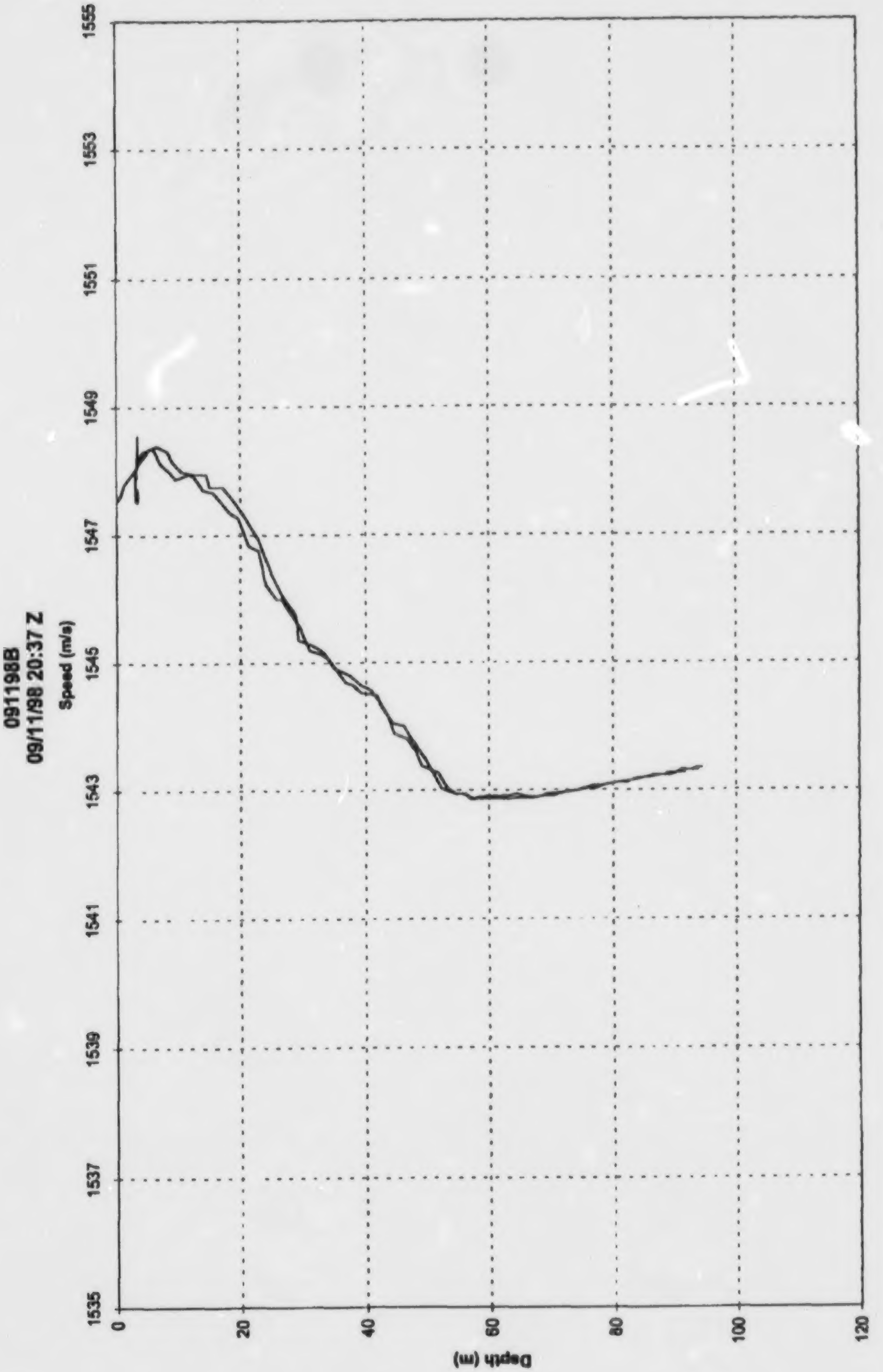


081198A
08/11/98 20:09 Z





091198A
09/11/98 11:35 Z


091198B
09/11/98 20:37 Z
Speed (m/s)
1535
1537
1539
1541
1543
1545
1547
1549
1551
1553
1555
Depth (m)
0
20
40
60
80
100
120

6. CURRENT PROFILES

This section contains plots of current profiles obtained on board Southern Surveyor. The profiles were obtained through two different methods. In the first method, the current profiler was lowered to the sea bottom, and raised back at a constant slow speed. In the second method, the current profiler was deployed at a given depth and left to collect data for several hours. Southern Surveyor was anchored when the second method was used.

The Excel files with the profiles from the first method are called PddhhmmZ.XLS, where 'ddhhmm' is the 4-digit number with the date, hour and minute of the profile. These files were used to produce plots of current speed and current direction as a function of depth. The Excel files containing the profiles from the second method are called CUR_xNOV.XLS, where x indicates the date. These files were used to produce plots of current speed, current direction and profiler depth as a function of time. The magnetic declination at the experimental site is 5°E. The direction shown on the plots was not corrected, it is the direct reading from the compass.

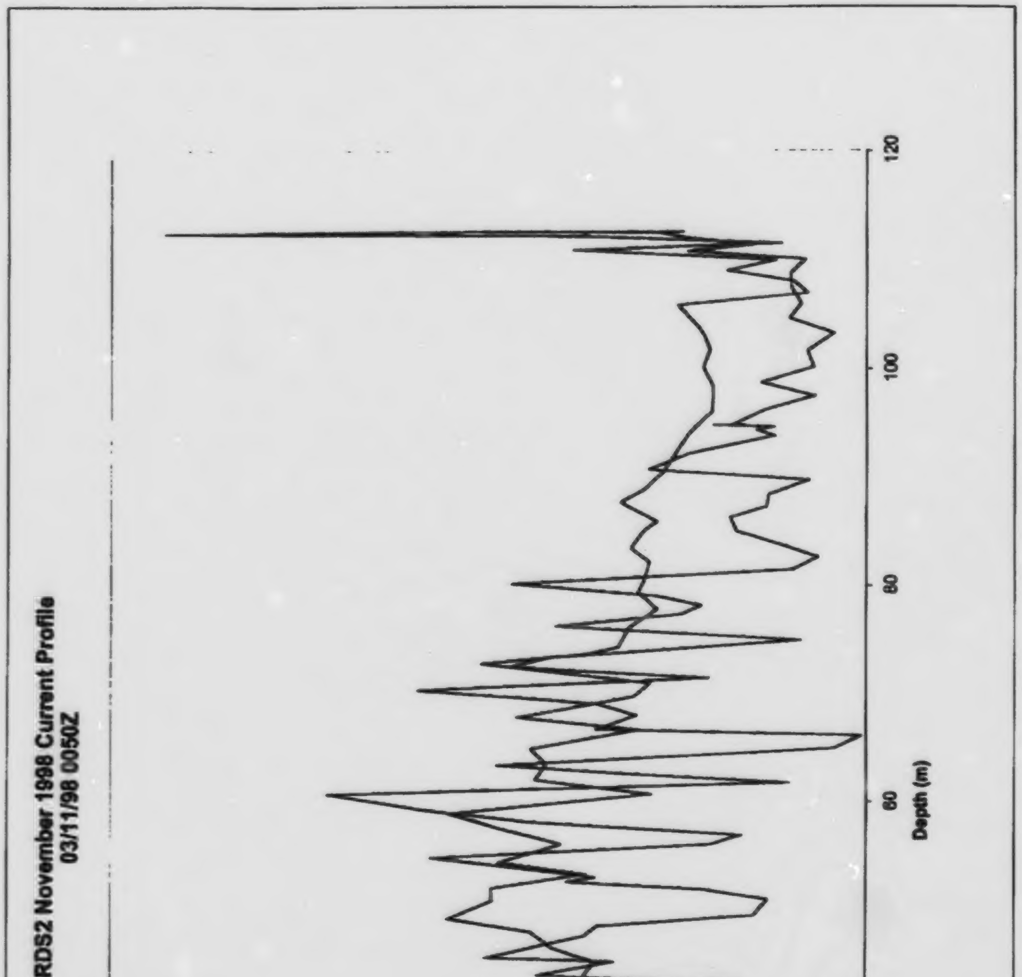
Southern Surveyor experienced some winch problems while taking the profile contained in the file CUR_4NOV.XLS, and the profiler sank to the seabed and presumably laid on its side for several hours. Eventually, the profiler was raised back to about 50 m depth.

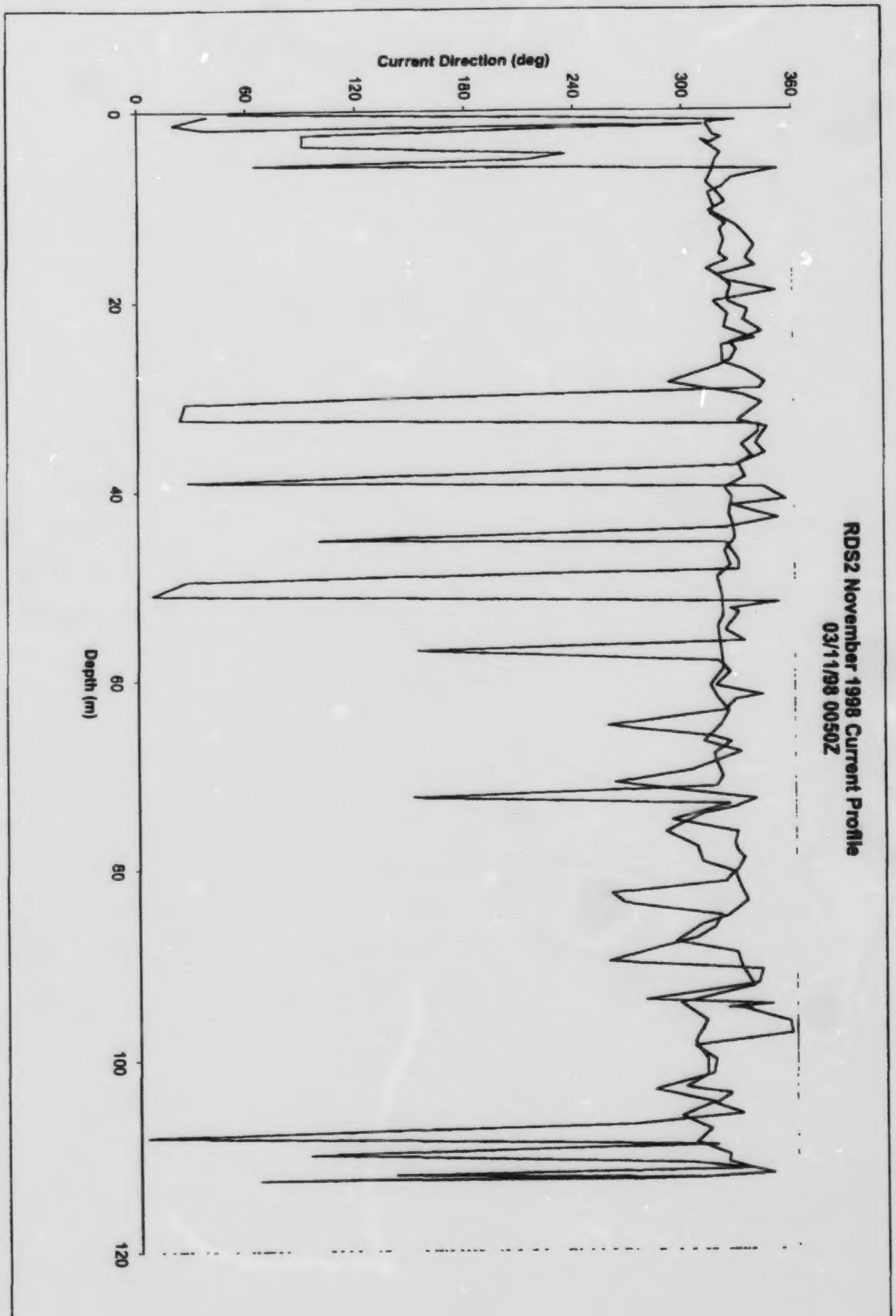
It should be noted that the currents obtained from the current profiler disagree with the navigation charts on board Southern Surveyor. The calculated currents appear to be out of phase by 180° with the expected currents.

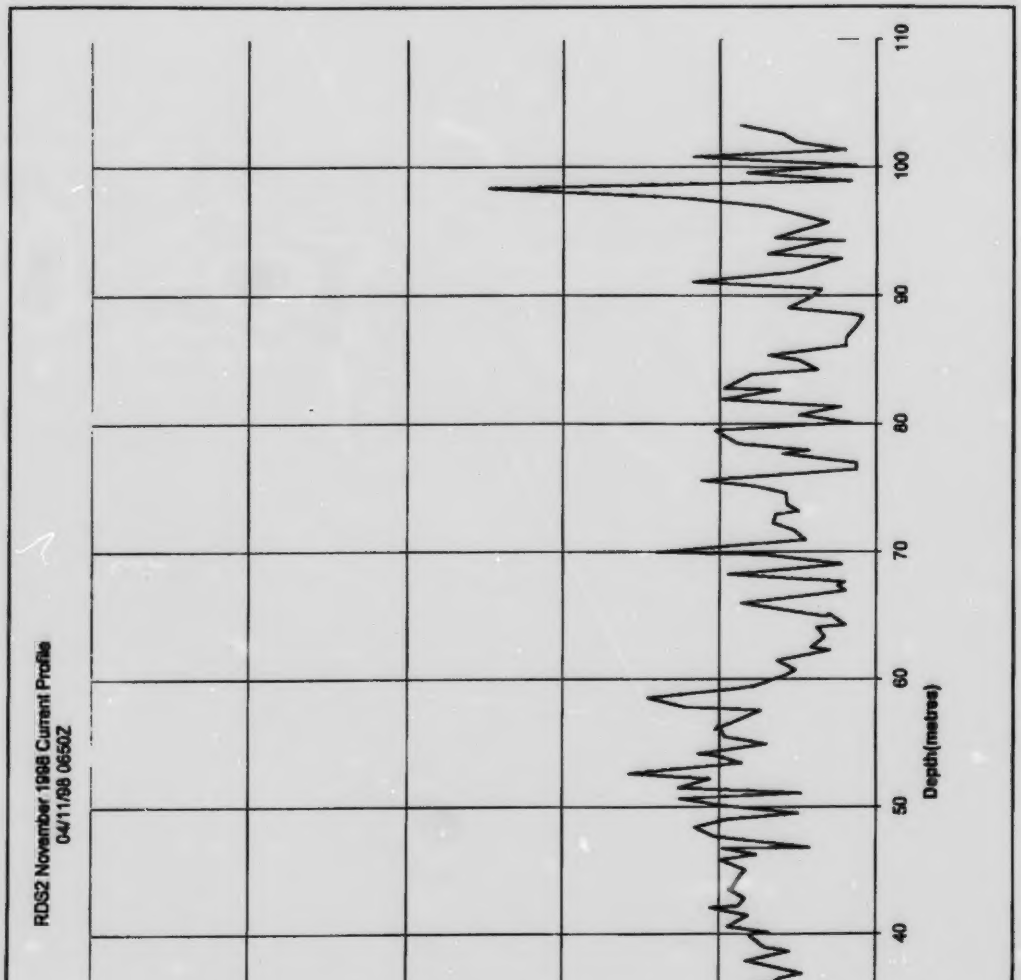
Table 5 lists the file names, dates and locations of each profile. Only the figures are shown in this report. The complete data are found on the RDS-2 environmental information CD.

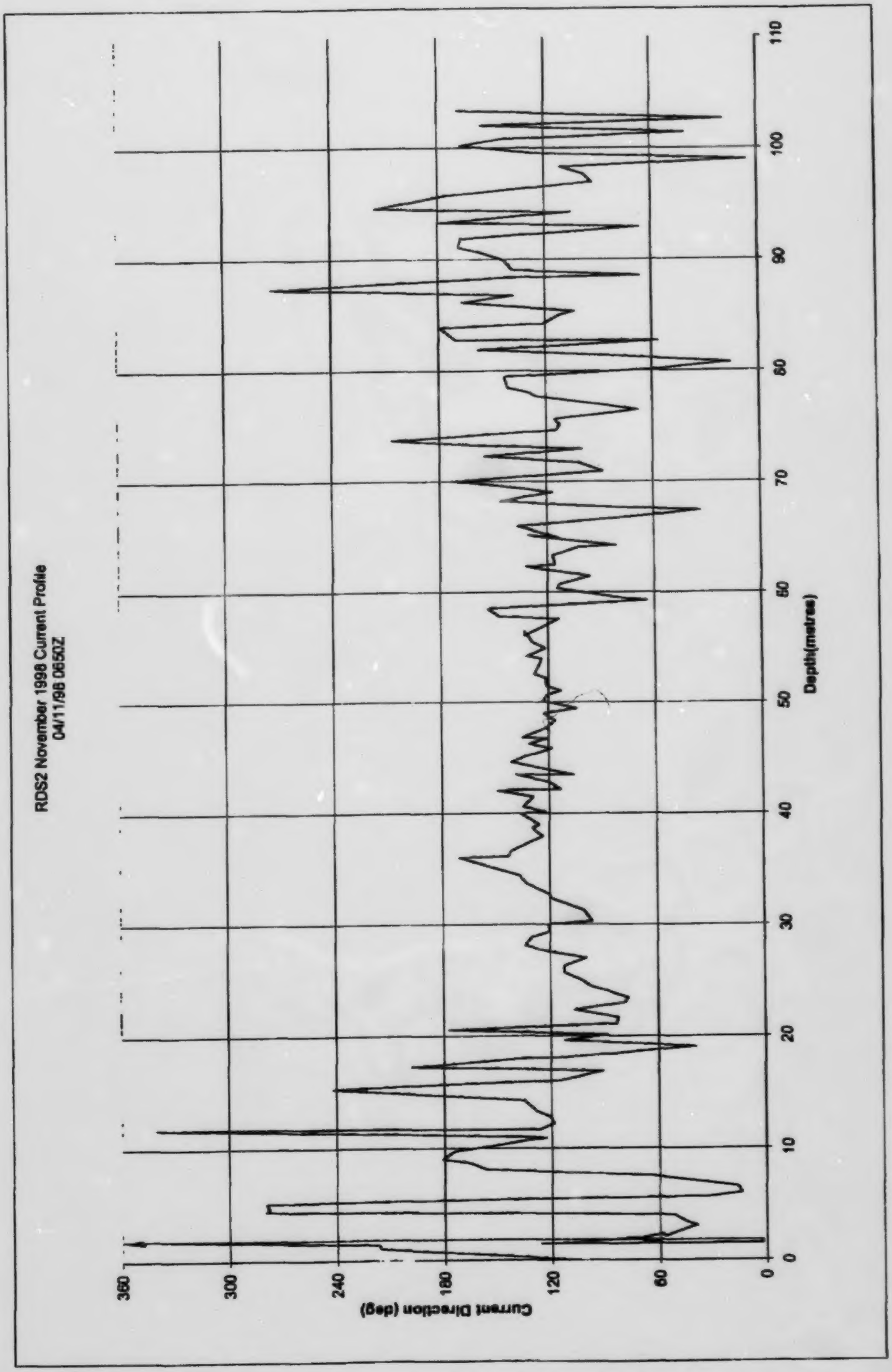
Table 5. Time, location and depth of current profile records from the profiler on board FRV Southern Surveyor.

Profile #	Filename	Date 1998	Time UTC	Latitude	Longitude	Water depth	Profiler depth
1	P030050Z	3/11	00:50	12°19.4771	128°18.3322	107 m	up, down
2	P040650Z	4/11	06:50	12°20.3057	128°19.9010	105	up, down
3	P040850Z	4/11	08:50	12°20.0663	128°19.2679	105	up, down
4	P040915Z CUR4NOV	4/11	11:00-23:00	12°20.0182	128°19.2042	100	~50 m
5	P052230Z CUR5NOV	5/11	10:35-22:30	12°19.5541	128°18.2825		50 m
6	P062100Z CUR6NOV	6/11	14:05-21:00	12°25.0047	128°20.4307		25 m

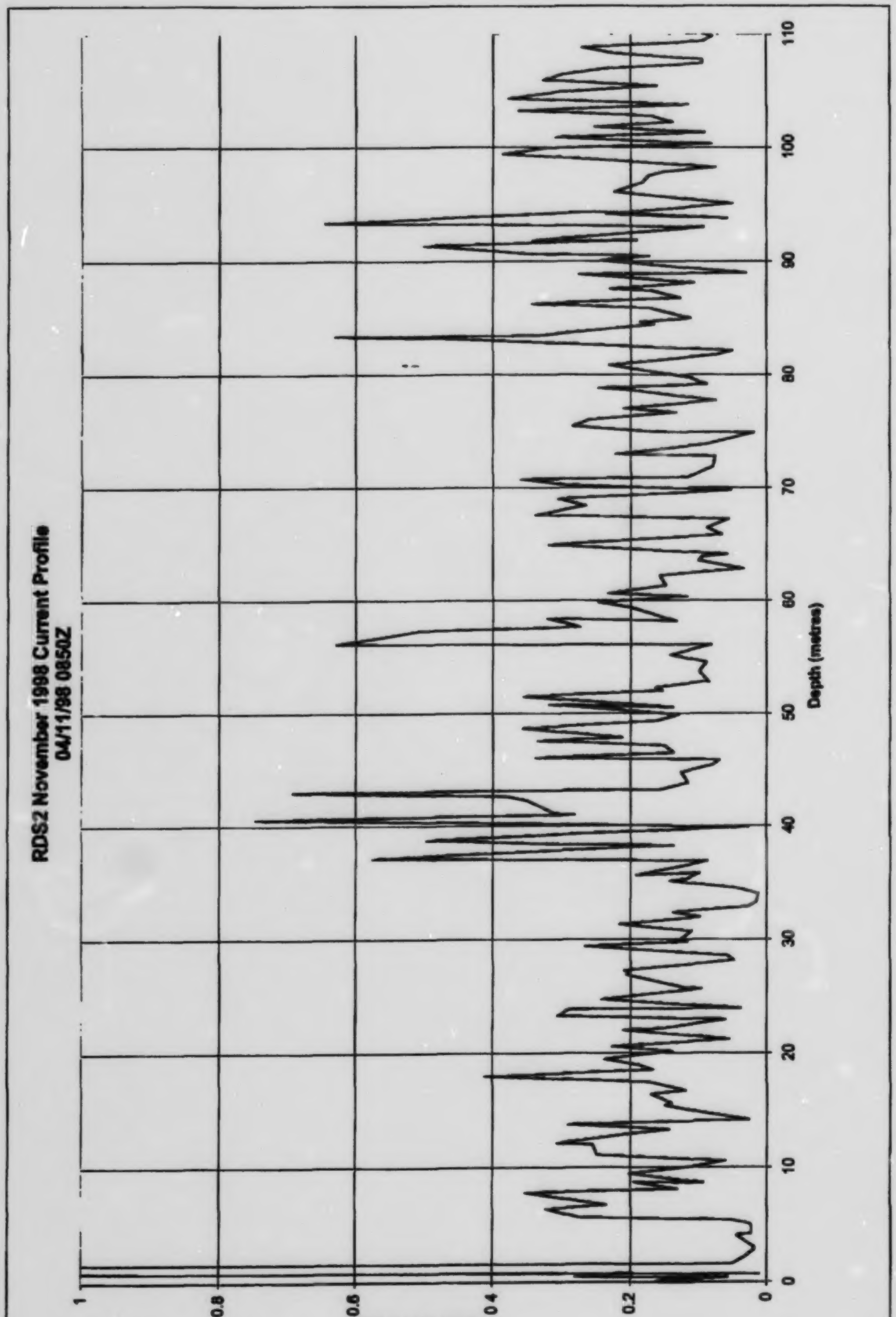

RDS2 November 1998 Current Profile
03/11/98 0050Z
Current Speed (m/s)
1
0.5
0
Depth (m)
0
20
40
60
80
100
120


RDS2 November 1998 Current Profile
03/11/98 0050Z
Current Direction (deg)
0
60
120
180
240
300
360
Depth (m)
0
20
40
60
80
100
120

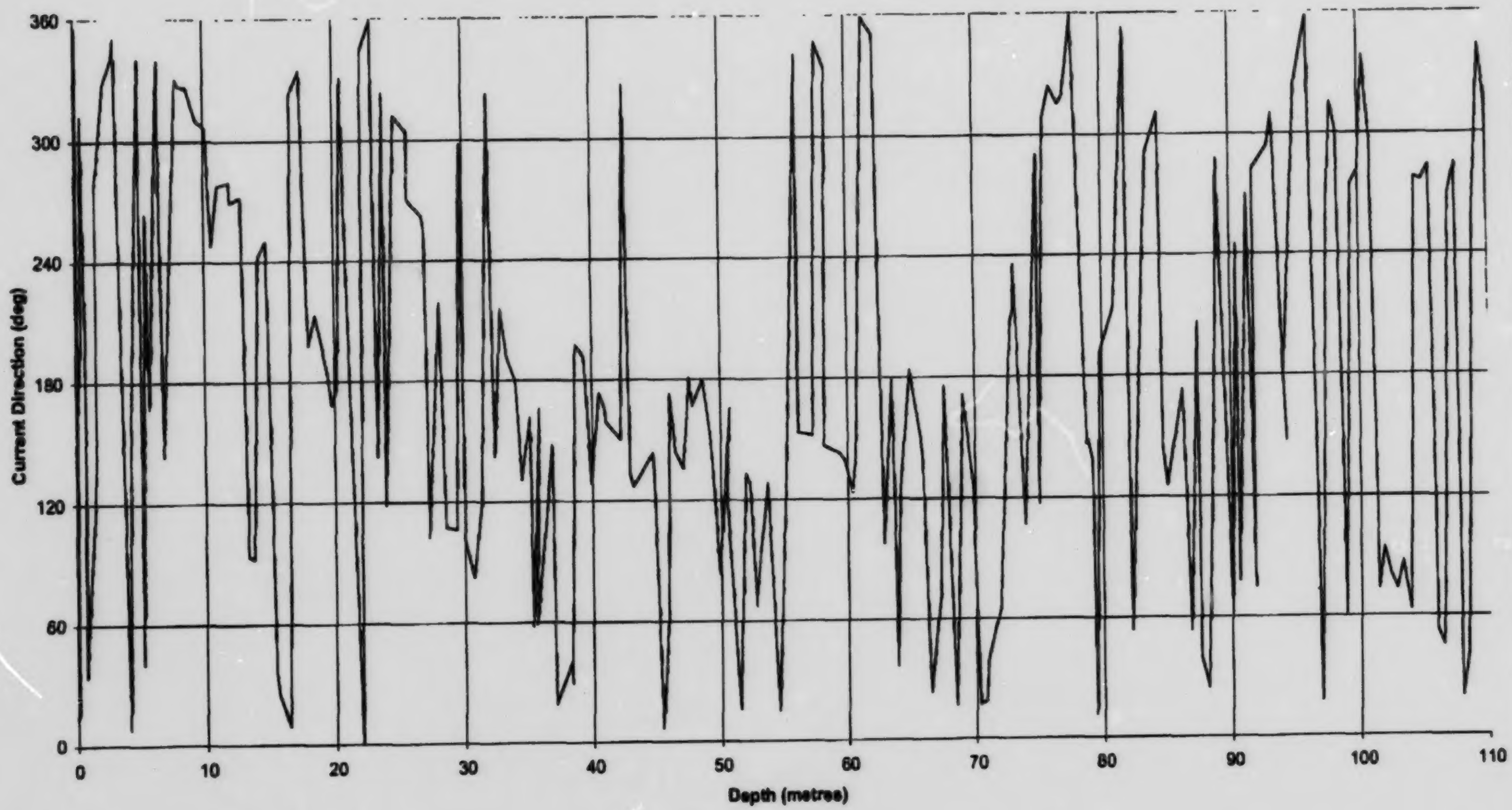

RDS2 November 1998 Current Profile
04/11/98 0650Z
Current Speed (m/s)
1
0.8
0.6
0.4
0.2
0
Depth(metres)
0
10
20
30
40
50
60
70
80
90
100
110

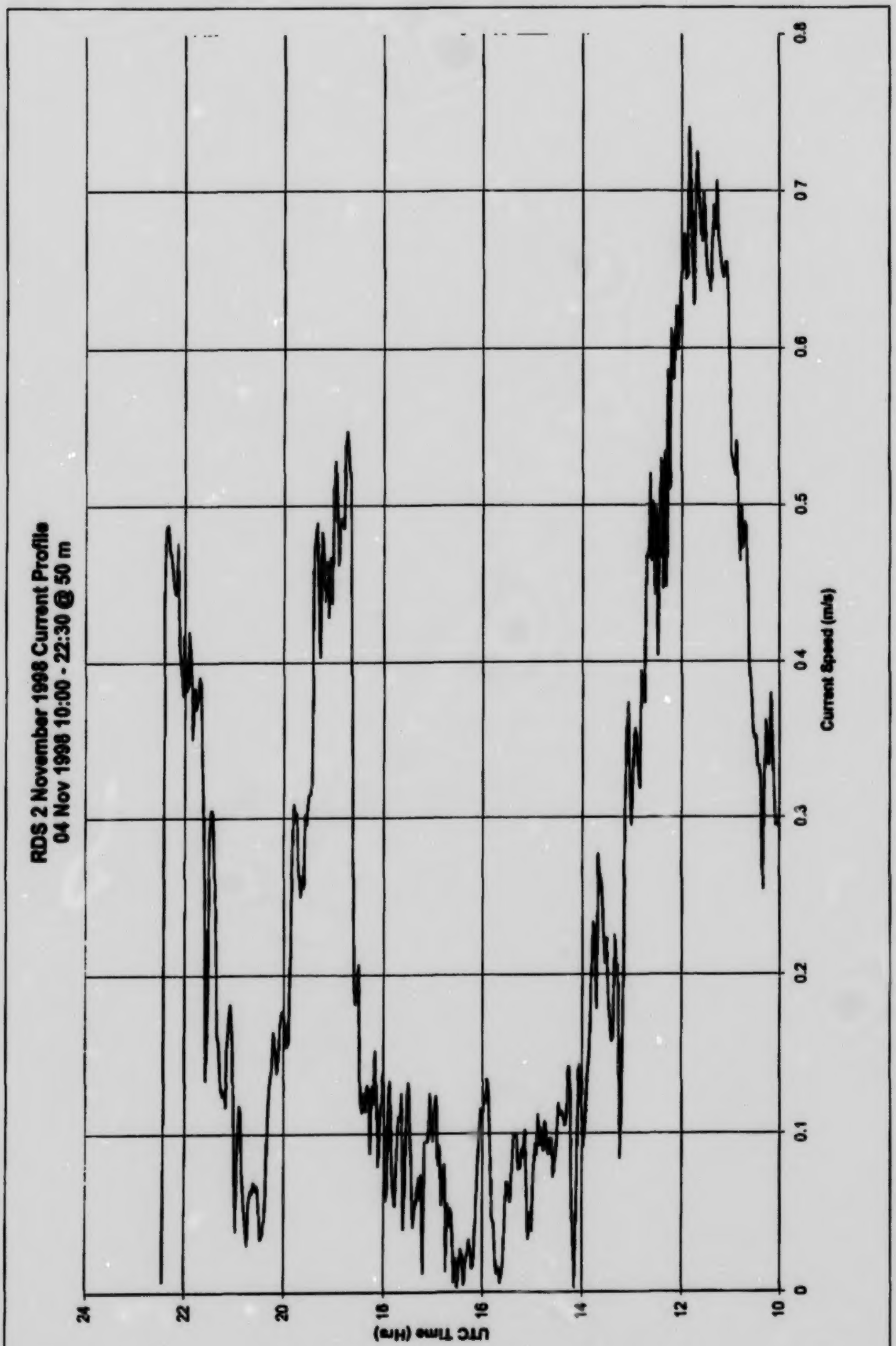


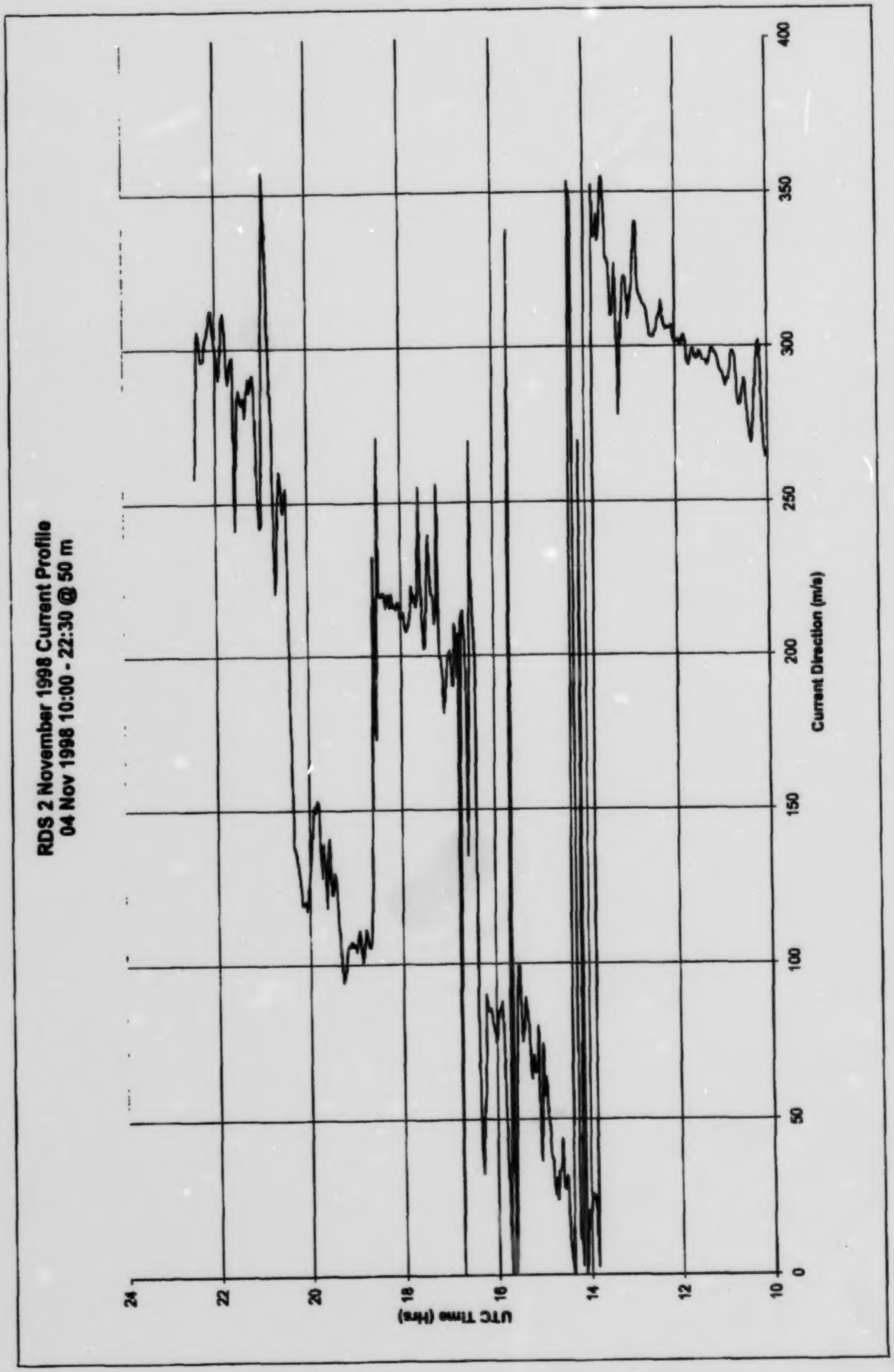
RDS2 November 1998 Current Profile
04/11/98 0650Z


RDS2 November 1998 Current Profile
04/11/98 0850Z
Current Speed (m/s)
1
0.8
0.6
0.4
0.2
0
Depth (metres)
0
10
20
30
40
50
60
70
80
90
100
110

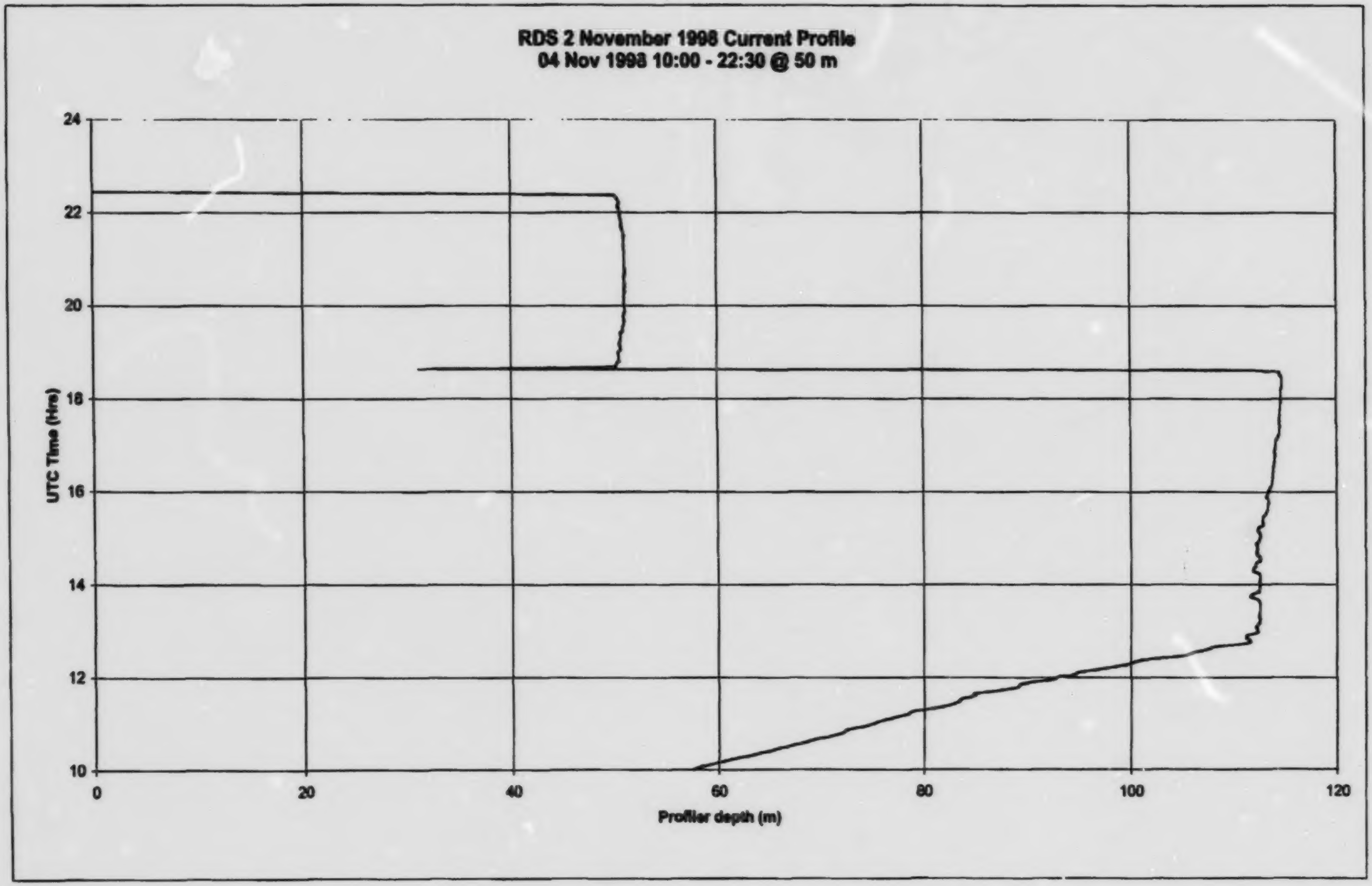
RDS2 November 1998 Current Profile
04/11/98 0850Z



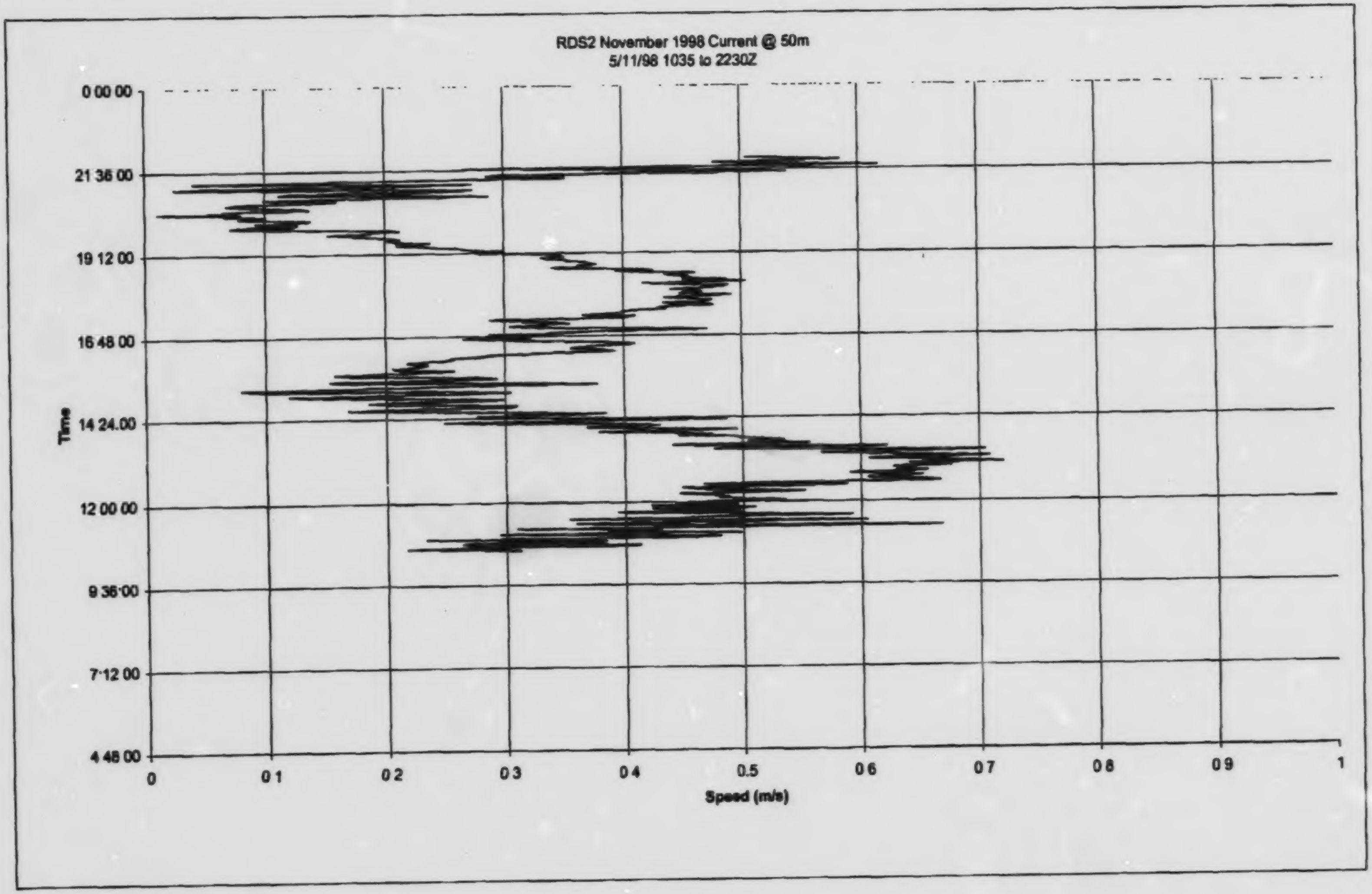

RDS 2 November 1998 Current Profile
04 Nov 1998 10:00 - 22:30 @ 50 m

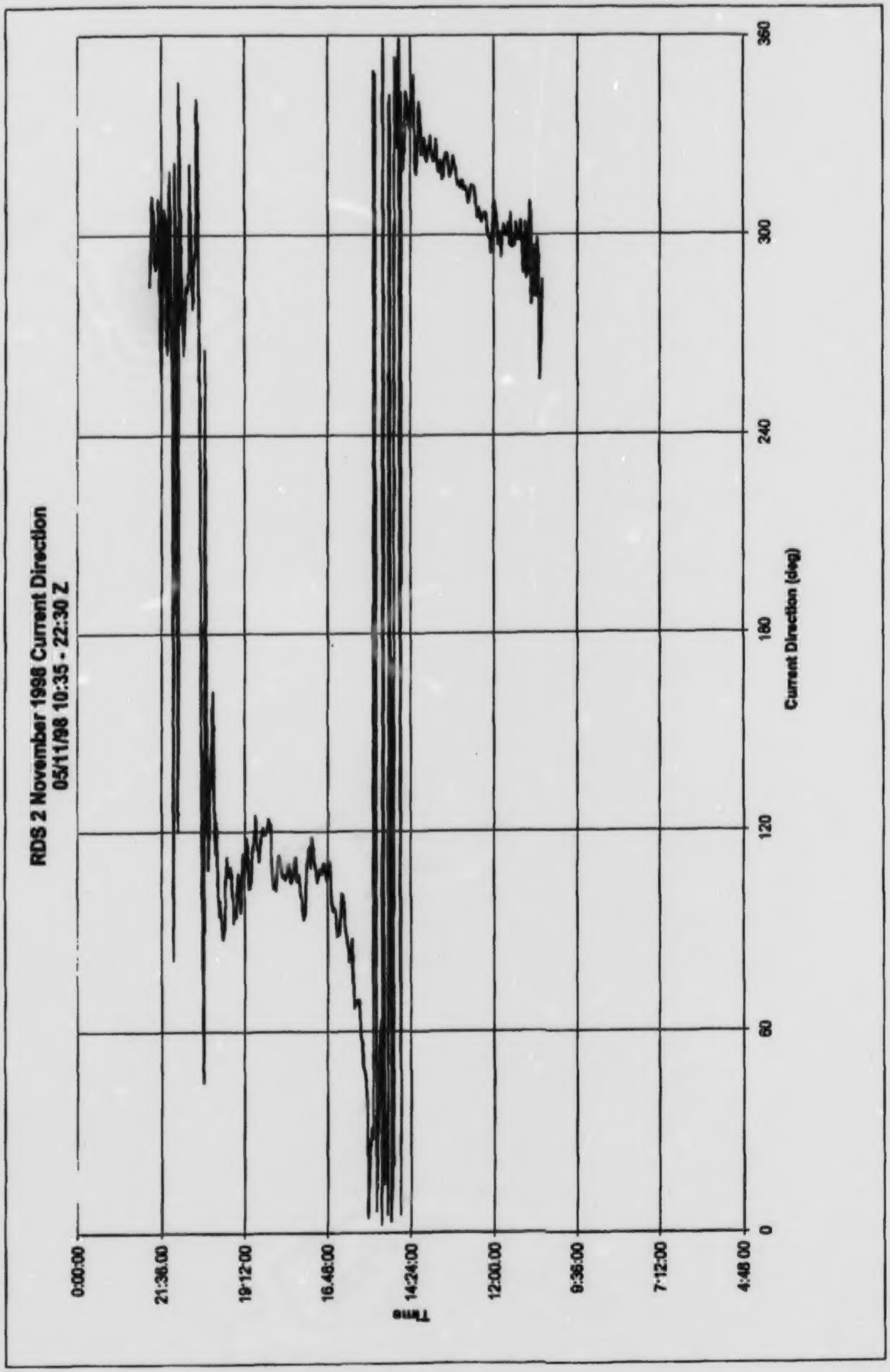


RDS 2 November 1998 Current Profile
04 Nov 1998 10:00 - 22:30 @ 50 m

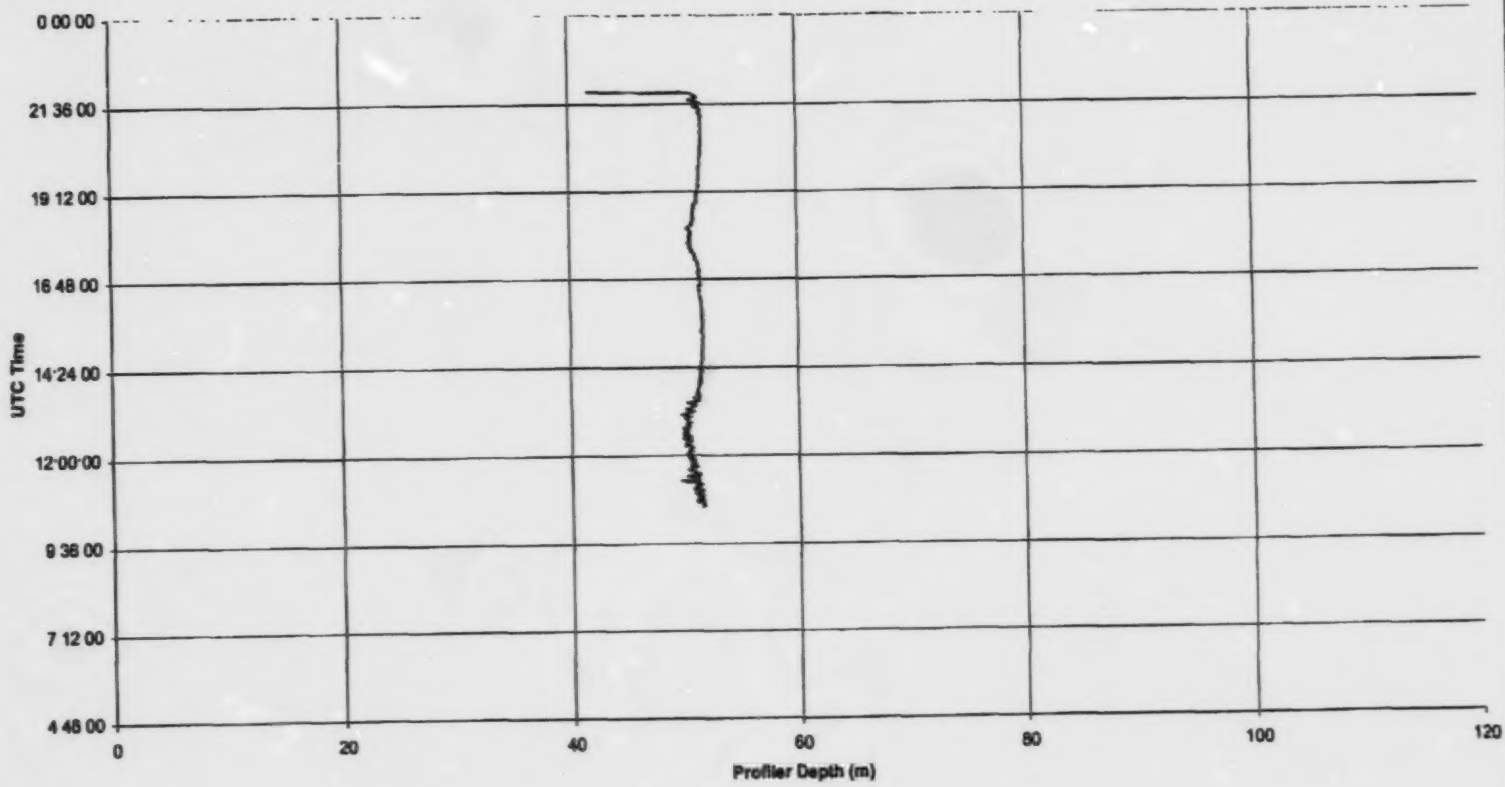


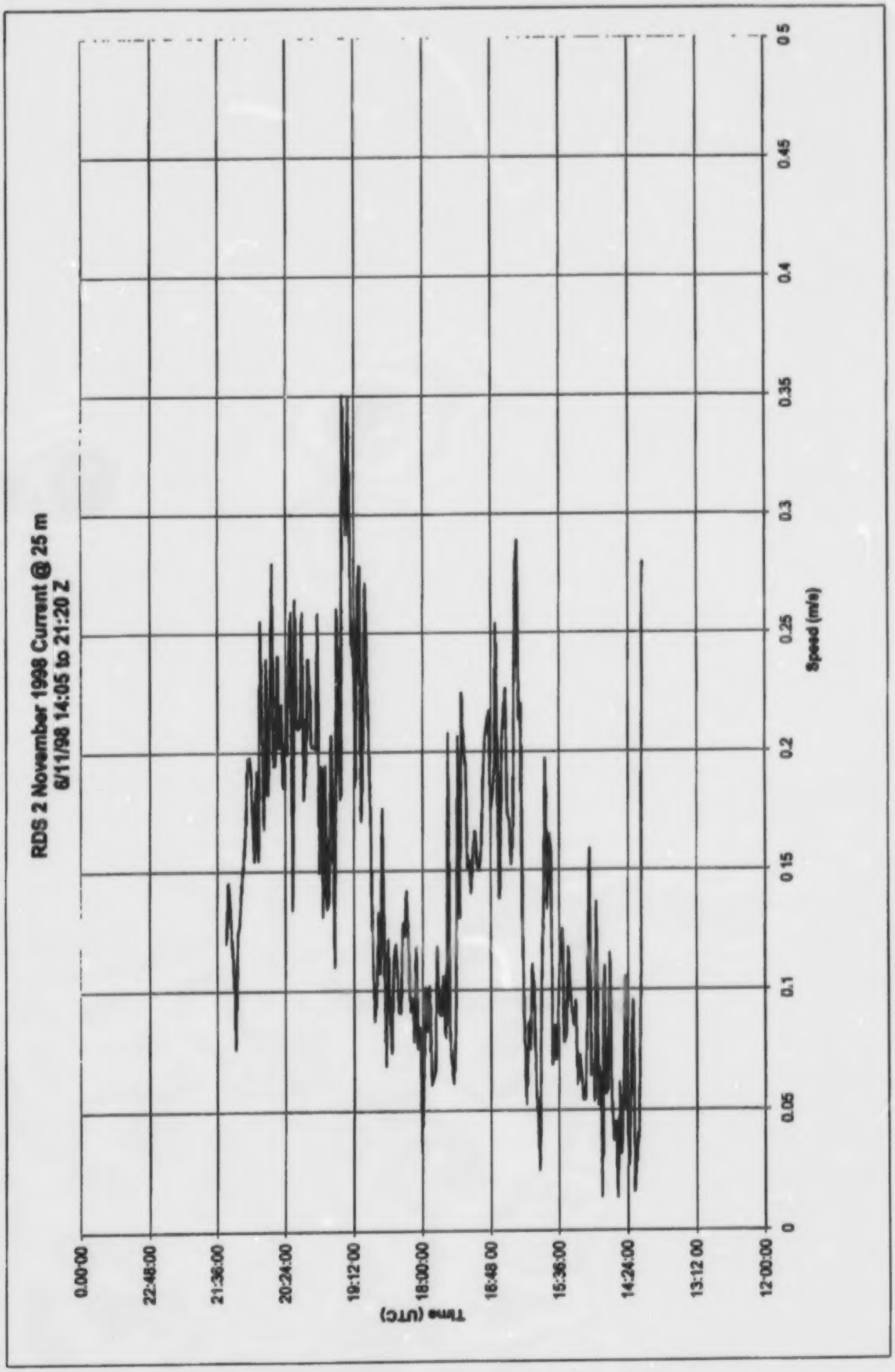
RDS 2 November 1998 Current Profile
04 Nov 1998 10:00 - 22:30 @ 50 m


RDS2 November 1998 Current @ 50m
5/11/98 1035 to 2230Z
Time
0 00 00
21 36 00
19 12 00
16 48 00
14 24.00
12 00 00
9 36·00
7·12 00
4 48 00
Speed (m/s)
0
0 1
0 2
0 3
0 4
0.5
0 6
0 7
0 8
0 9
1

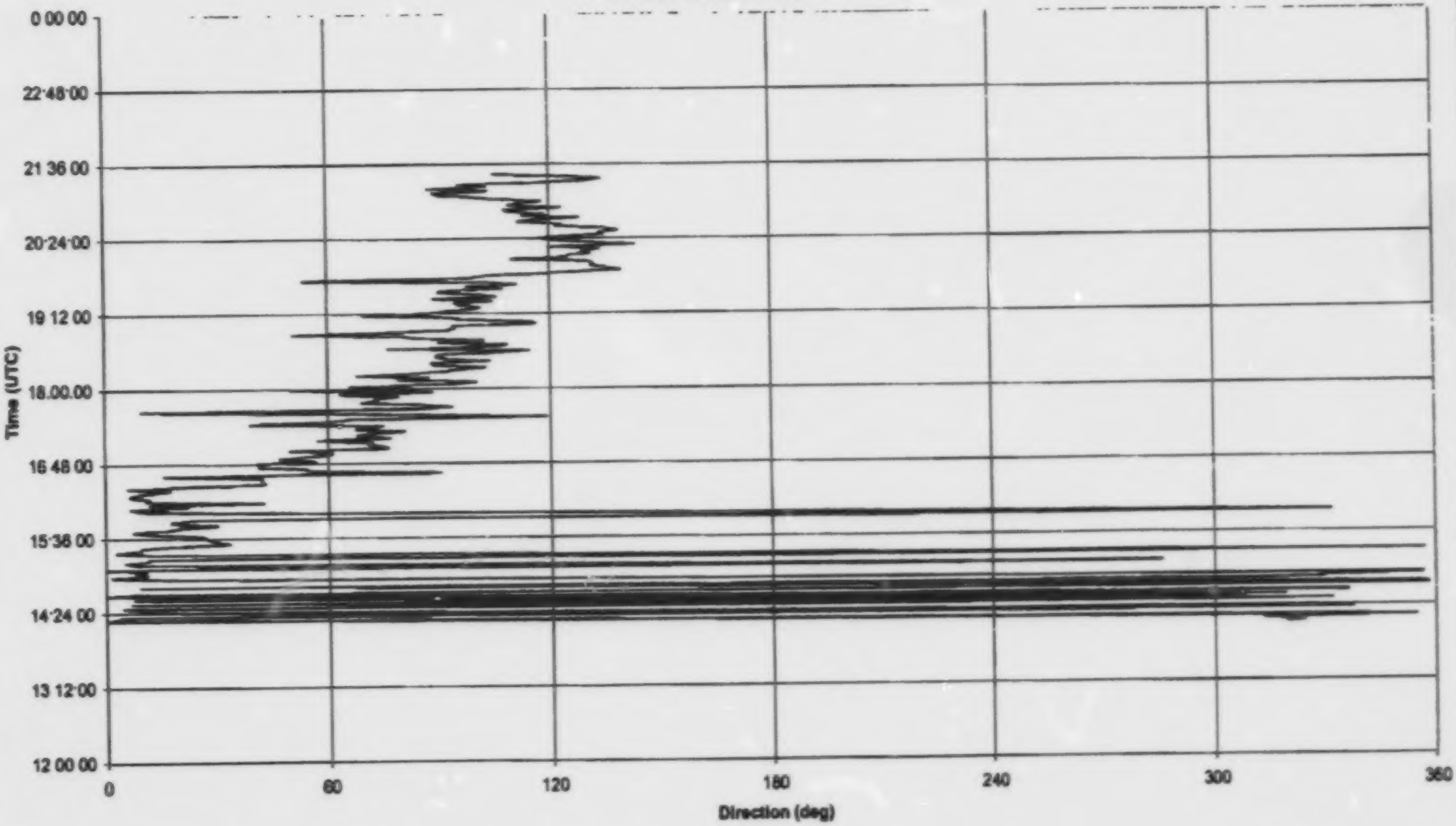

RDS 2 November 1998 Current Direction
05/11/98 10:35 - 22:30 Z
Time
0:00:00
21:36:00
19:12:00
16:48:00
14:24:00
12:00:00
9:36:00
7:12:00
4:48:00
Current Direction (deg)
0
60
120
180
240
300
360

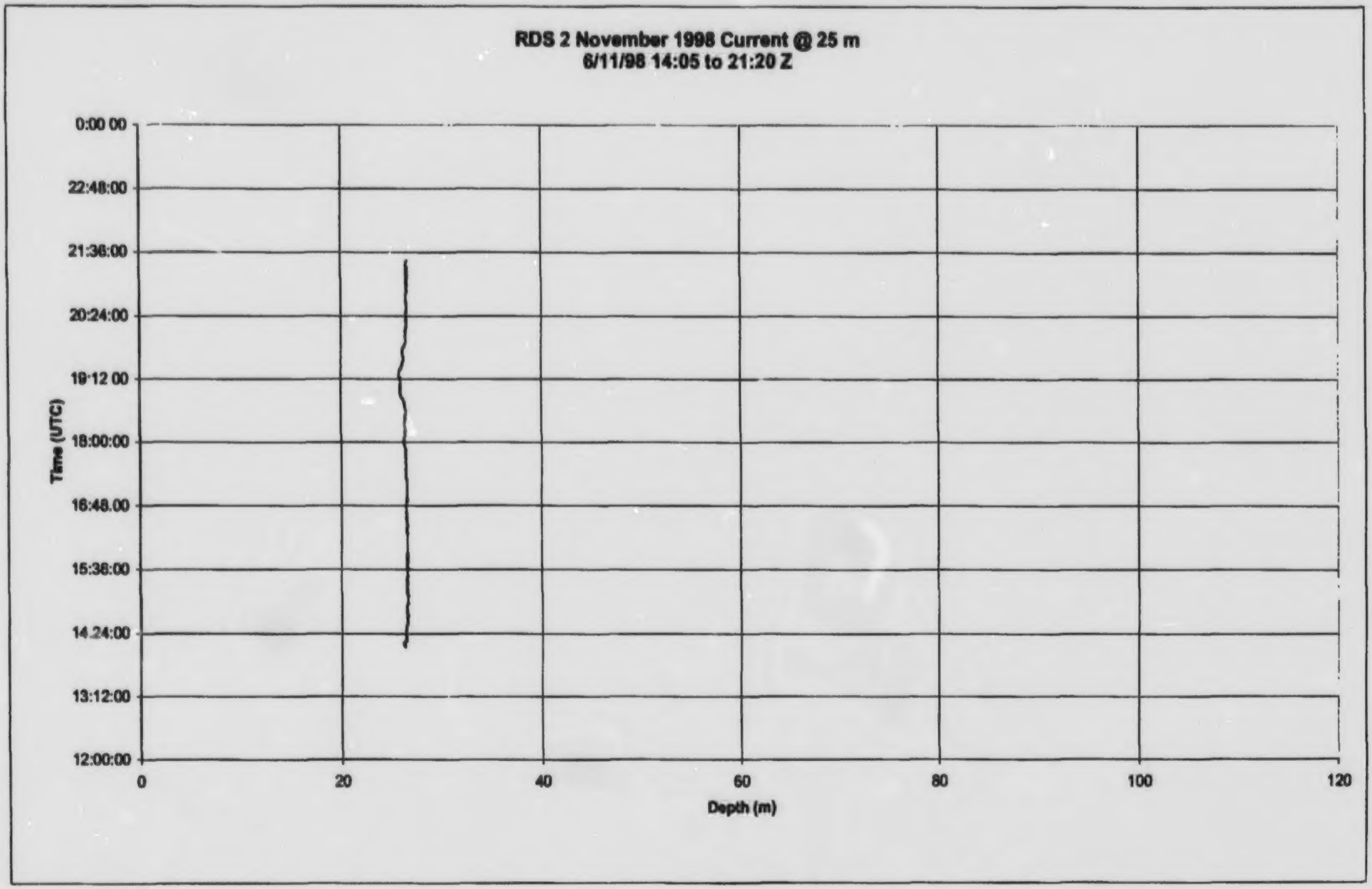
RDS 2 November 1998 Current Direction
05/11/98 10:35 - 22:30 Z




RDS 2 November 1998 Current @ 25 m
6/11/98 14:05 to 21:20 Z
Time (UTC)
0:00:00
22:48:00
21:36:00
20:24:00
19:12:00
18:00:00
16:48:00
15:36:00
14:24:00
13:12:00
12:00:00
Speed (m/s)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5

RDS 2 November 1998 Current Direction @ 25 m
6/11/98 14:05 - 21:20 Z





RDS 2 November 1998 Current @ 25 m
6/11/98 14:05 to 21:20 Z

7. WEATHER INFORMATION

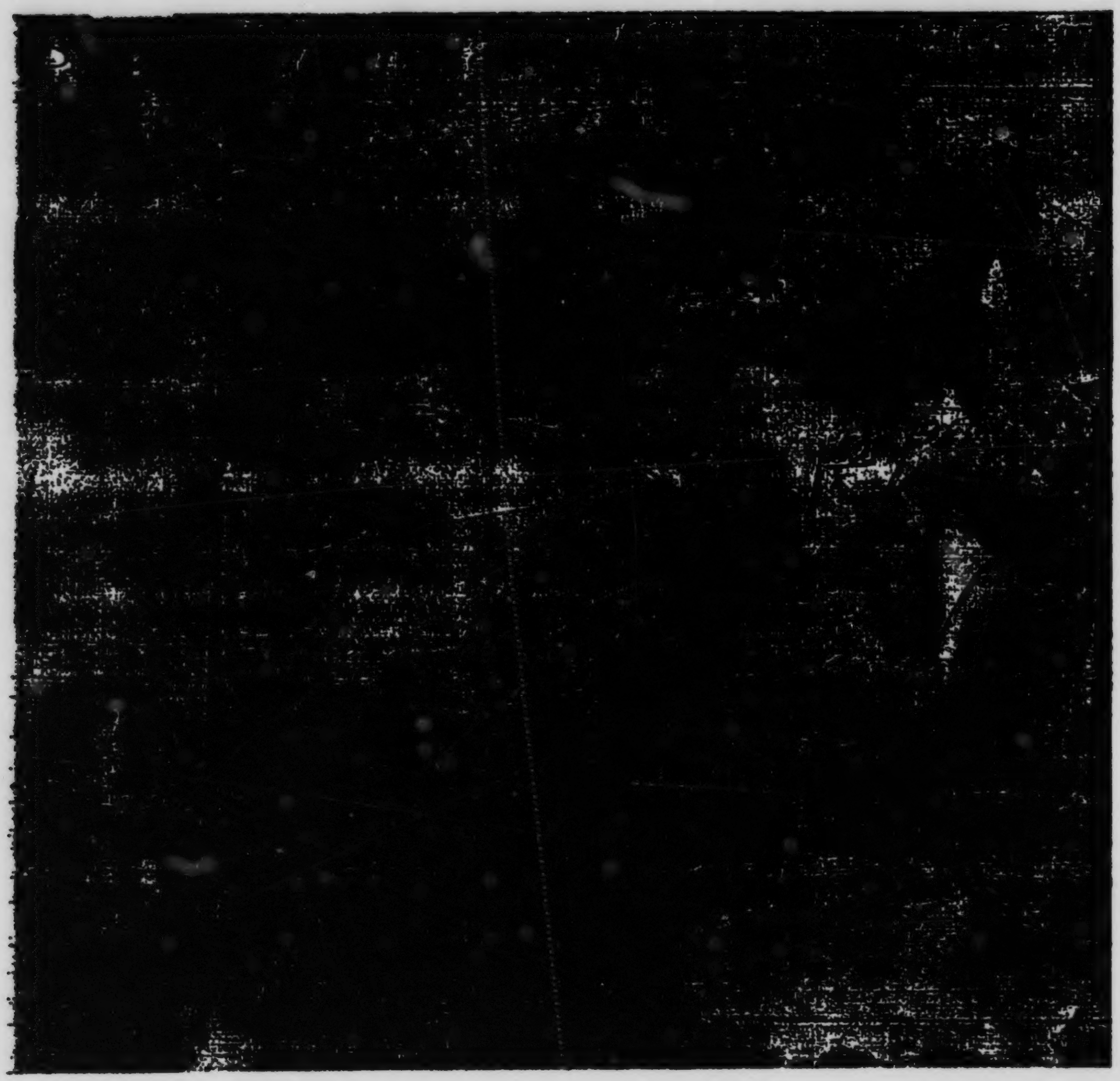
The weather varied little over the period of the trial. Most days were warm and humid, with a sea state of 0 to 1 and occasional rain showers. A notable exception was on Thursday, 5 November 1998 when a storm front passed by and produced winds of up to 30-40 kn. The weather after the storm went back to normal. Below is a weather forecast for the period of 6-10 November 1998. The following pages reproduce surface analysis maps from the Australian Bureau of Meteorology, valid for the periods of 7-9 November 1998.

Forecast for Timor Sea are near the vicinity of 12.2S 128.2E valid for the next 4 days valid from 06 November.

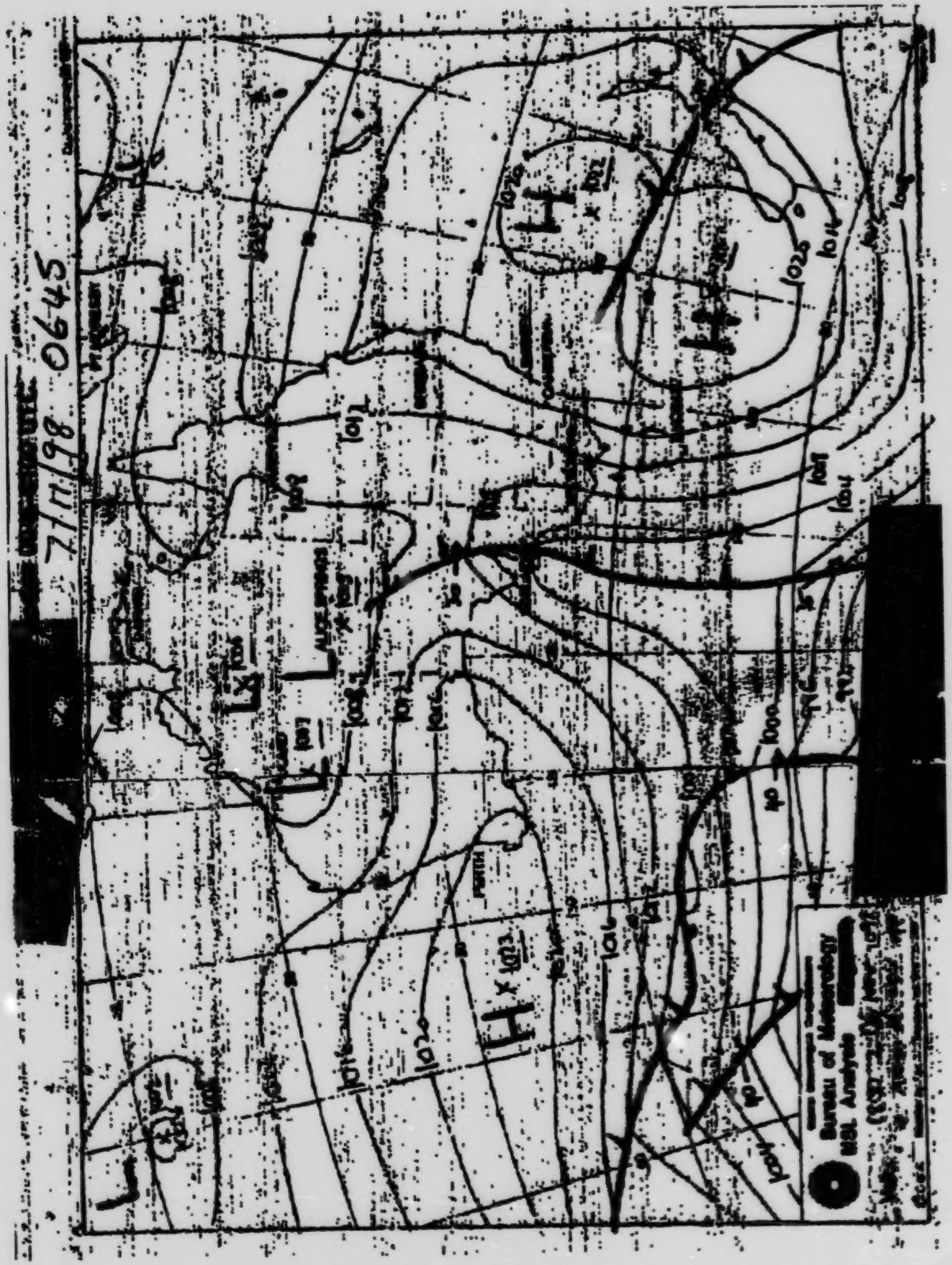
Situation:
Week monsoon trough over Indonesia. This trough is expected to remain slowmoving. Seasonal trough over the Kimberley region over Australia with mainly light winds over the area of concern.

Forecast:
Mostly variable winds to 10 knots. Isolated storms with gusts to 35 knots. No widespread rain is expected but storms coming from inland Australia could organize into squall lines early next week.

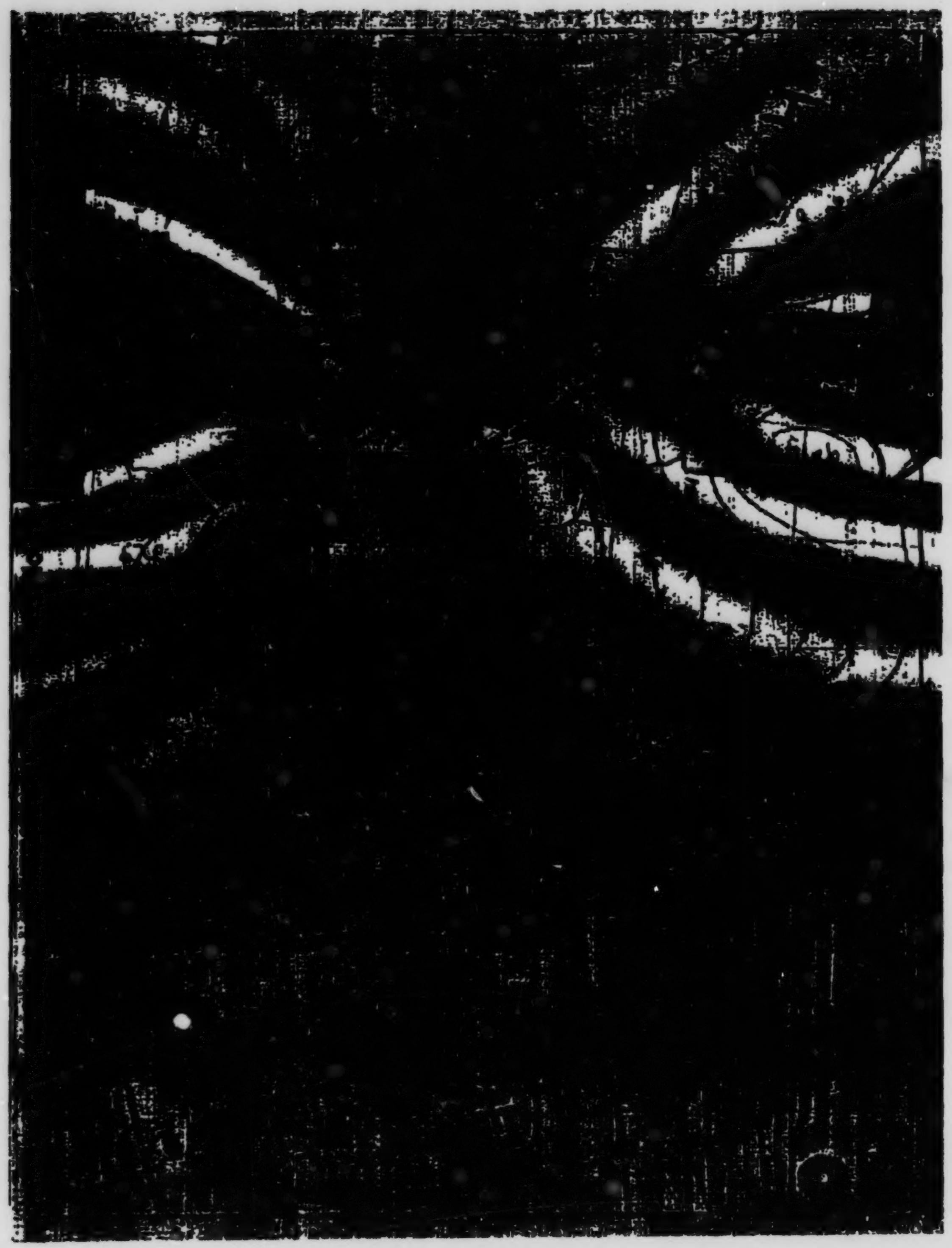
ATTN: SOUTHERN SURVEYOR



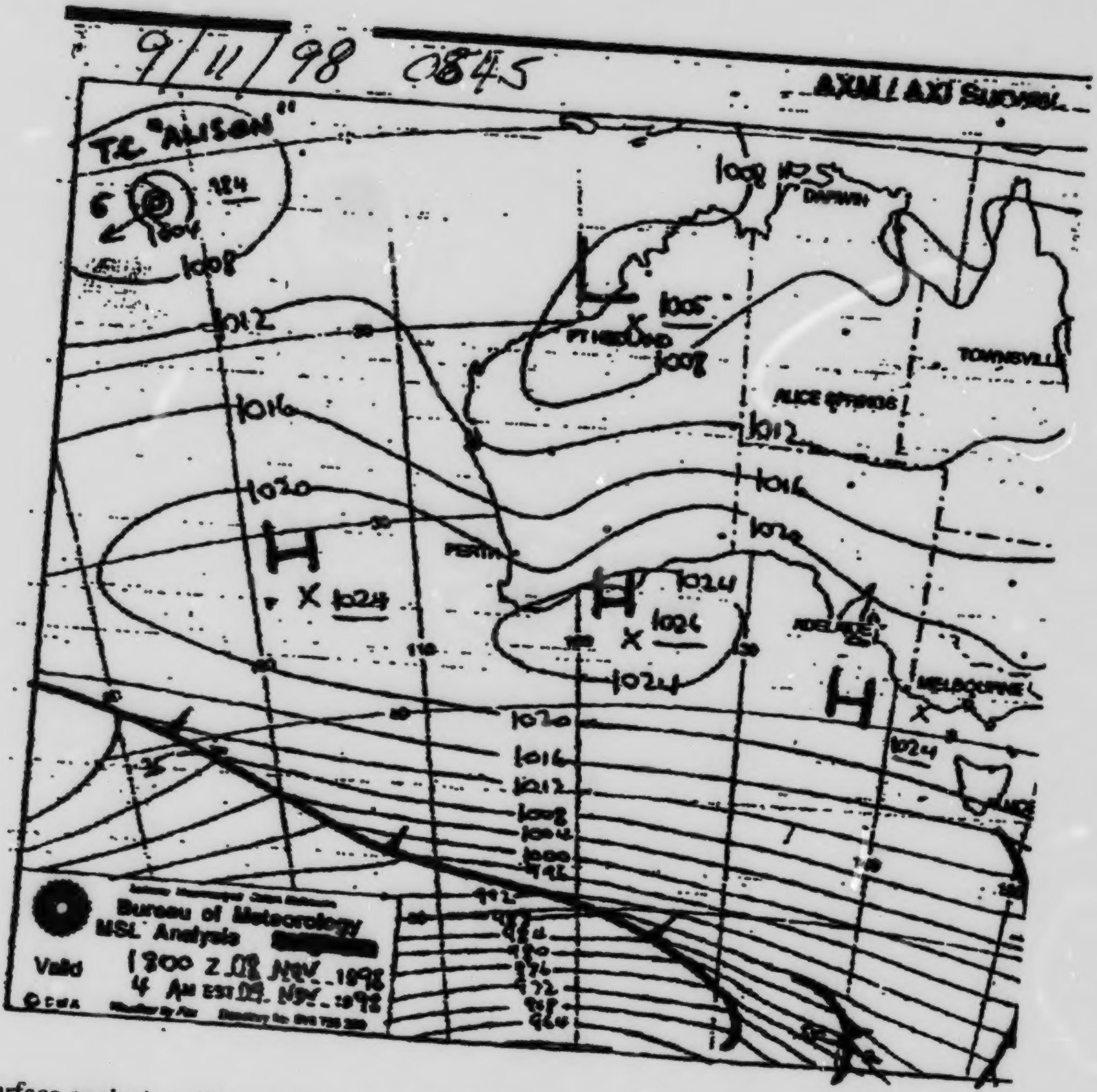
Surface analysis valid on 5 November 1998 18:00Z (or 6 November 1998, 03:30 local).


7/11/98 0645
H
H
H
L
L
L
PERTH
1000
1004
1008
1012
1016
1020
1024
1028
Bureau of Meteorology
MSL Analysis

Surface analysis valid on 6 November 1998 18:00Z (or 7 November 1998, 03:30 local).



Surface analysis valid on 7 November 1998 18:00Z (or 8 November 1998, 03:30 local).


9/11/98 0845
AXM / AXI
TC "ALISON"
984
1004
1008
1012
1016
1020
1024
1008
1005
DARWIN
PT HEDLAND
TOWNSVILLE
ALICE SPRINGS
PERTH
ADELAIDE
MELBOURNE
H
L
X
1020
1016
1012
1008
1004
1000
996
992
988
984
980
976
972
968
964
Bureau of Meteorology
MSL Analysis [redacted]
Valid 1800 Z 08 NOV 1998
4 AM EST 09 NOV 1998

Surface analysis valid on 8 November 1998 18:00Z (or 9 November 1998, 03:30 local).

8. SONAR RESEARCH PROJECTOR

This section contains the information necessary for the analysis of the data for those periods during which the Sonar Research Projector (SRP) was turned on. For the sake of redundancy, the hand logs taken by the SRP operators are also reproduced here. Some physical parameters are also included, such as the SRP depth and the speed and direction of the tow ship (FRV Southern Surveyor). The last sub-section shows some data samples recorded during SRP operations.

8.1 SRP operations log

The SRP operations log lists the time periods during which the SRP was operating. The log also contains the serial ID number characterising the signal being projected. More information on those signals are found in the following sub-section (Spectrum ID log). The speed of the tow ship is also noted in this log.

SRP log – Southern Surveyor

Serial	Spectrum ID	Comex (UTC)	Finex (UTC)	Fish Depth (m)	SS Speed (kt)	Date	Comments
TOW1	MF1	10:05:??	10:32:??	~50	~3	1/11/98	142.5dB @ 70Hz 152.5dB @ 95Hz 151.5dB @ 145Hz
PD1	AN1	??	06:24:??	-	drifting	3/11/98	Ambient Noise PD1 - Full shut-down for SS. MN and PC requested to be quiet
PD1	NB2	06:24:??	06:28:27	50	drifting	3/11/98	148.0dB @ 80Hz 145.0dB @ 95Hz 145.0dB @ 125Hz 147.0dB @ 160Hz 147.0dB @ 195Hz 147.0dB @ 245Hz 146.0dB @ 315Hz 141.0dB @ 470Hz
PD1	BB2	06:29:30	06:34.34	50	drifting	3/11/98	80-800Hz -6dB/oct with 134dB @ 80Hz Note incorrect settings for channel 1 :- fc=325Hz, BW=450Hz.
PD1	NB1	06:36:55	06:42:16	50	drifting	3/11/98	128.6dB @ 58Hz 136.6dB @ 63Hz 124.9dB @ 193Hz 132.7dB @ 197Hz 121.1dB @ 332Hz 129.0dB @ 336Hz 125.4dB @ 466Hz 117.3dB @ 470Hz
TOW2	MF2	11:40:45	13:21:00	~53	~3	3/11/98	154.0dB @ 70Hz 150.0dB @ 110Hz Reduced tow speed to 2kt at end of run
TOW3	MF3	00.15:15	05:05:33	~50	~4	4/11/98	155.0dB @ 80Hz 155.0dB @ 110Hz
PD2	NB1	04:08:10	04:14:45	50.5	drifting	6/11/98	Partial shut-down for SS, main engines and blast freezer compressor off. MN and PC requested to be quiet however there was some work boat activity 128.6dB @ 58Hz 136.6dB @ 63Hz 124.9dB @ 193Hz 132.7dB @ 197Hz 121.1dB @ 332Hz 129.0dB @ 336Hz 125.4dB @ 466Hz 117.3dB @ 470Hz

Serial	Spectrum ID	Comex (UTC)	Finex (UTC)	Fish Depth (m)	SS Speed (kt)	Date	Comments
PD3	AN1	04:32:??	04:36:??	50.5	drifting	6/11/98	PD3 – Same location as PD2 but full shut-down for SS. MN,PC and work boat activity same as for PD2.
PD3	NB1	04:36:10	04:41:15	50.9	drifting	6/11/98	128.6dB @ 58Hz 136.6dB @ 63Hz 124.9dB @ 193Hz 132.7dB @ 197Hz 121.1dB @ 332Hz 129.0dB @ 336Hz 125.4dB @ 466Hz 117.3dB @ 470Hz
PD3	NB2	04:43:40	04:48:46	50.5	drifting	6/11/98	148.0dB @ 80Hz 147.0dB @ 95Hz 147.0dB @ 125Hz 147.0dB @ 160Hz 147.0dB @ 195Hz 147.0dB @ 245Hz 146.0dB @ 315Hz 141.0dB @ 470Hz
PD3	BB1	04:50:50	04:55:55	50.5	drifting	6/11/98	80-800Hz -3dB/oct with 98dB @ 80Hz Note incorrect settings for channel 1:- fc=325Hz,BW=450Hz
PD3	BB2	04:57:20	05:02:33	50.5	drifting	6/11/98	80-800Hz -6dB/oct with 134dB @ 80Hz Corrected settings for channel 1 :- fc=315, BW=470.
PD4	AN1	06:03:40	06:08:41	51.4	drifting	6/11/98	Full shut-down for SS. MN, PC and all work boats in quiet state.
PD4	NB1	06:09:42	06:14:51	51.0	drifting	6/11/98	128.6dB @ 58Hz 136.6dB @ 63Hz 124.9dB @ 193Hz 132.7dB @ 197Hz 121.1dB @ 332Hz 129.0dB @ 336Hz 125.4dB @ 466Hz 117.3dB @ 470Hz
PD4	NB2	06:16:35	06:21:35	51.5	drifting	6/11/98	148.0dB @ 80Hz 147.0dB @ 95Hz 147.0dB @ 125Hz 147.0dB @ 160Hz 147.0dB @ 195Hz 147.0dB @ 245Hz 146.0dB @ 315Hz 141.0dB @ 470Hz
PD4	BB1	06:22:19	06:27:19	51.1	drifting	6/11/98	80-800Hz -3dB/oct with 98dB @ 80Hz channel 1 :- fc=315, BW=470.

Serial	Spectrum ID	Comex (UTC)	Finex (UTC)	Fish Depth (m)	SS Speed (kt)	Date	Comments
PD4	BB2	06:28:05	06:33:05	51.3	drifting	6/11/98	80-800Hz -6dB/oct with 134dB @ 80Hz channel 1 :- fc=315, BW=470.
TOW4	NB3	07:46:50	09:46:15	52.4	~3.5	6/11/98	167.1dB @ 245Hz 178.2dB @ 315Hz 170.3dB @ 470Hz 171.0dB @ 590Hz
TOW5	NB4	10:52:51	12:39:45	49.6	~3.0	6/11/98	153.2dB @ 55Hz
DRIFT1	NB5	12:44:03	14:00:00	50.0	drifting	7/11/98	Partial shut-down for SS. 148dB @ 95Hz 148dB @ 110Hz 148dB @ 125Hz 148dB @ 143Hz 148dB @ 160Hz 148dB @ 173Hz 148dB @ 195Hz
PD5	NB1	04:49:40	04:54:40	50.6	drifting	8/11/98	Partial shut-down 128.6dB @ 58Hz 136.6dB @ 63Hz 124.9dB @ 193Hz 132.7dB @ 197Hz 121.1dB @ 332Hz 129.0dB @ 336Hz 125.4dB @ 466Hz 117.3dB @ 470Hz
PD5	AN1	04.55:00	05:00:00	50.8	drifting	8/11/98	Ambient noise
PD5	NB2	05:00:20	05:05:20	50.5	drifting	8/11/98	148.0dB @ 80Hz 147.0dB @ 95Hz 147.0dB @ 125Hz 147.0dB @ 160Hz 147.0dB @ 195Hz 147.0dB @ 245Hz 146.0dB @ 315Hz 141.0dB @ 470Hz
PD5	BB2	05:06:40	05:11:40	50.6	drifting	8/11/98	80-800Hz -6dB/oct with 134dB @ 80Hz channel 1 :- fc=315, BW=470.
PD6	AN1	06:02:50	06:07:50	51.0	drifting	8/11/98	Ambient noise Partial shut-down for SS
PD6	NB1	06:08:10	06:09:00	50.8	drifting	8/11/98	Had wrong tones in water – new comex required

Serial	Spectrum ID	Comex (UTC)	Finex (UTC)	Fish Depth (m)	SS Speed (kt)	Date	Comments
PD6	NB1	06:09:30	06:14:30	50.8	drifting	8/11/98	128.6dB @ 58Hz 136.6dB @ 63Hz 124.9dB @ 193Hz 132.7dB @ 197Hz 121.1dB @ 332Hz 129.0dB @ 336Hz 125.4dB @ 466Hz 117.3dB @ 470Hz
PD6	NB2	06:17:25	06:22:25	50.9	drifting	8/11/98	148.0dB @ 80Hz 147.0dB @ 95Hz 147.0dB @ 125Hz 147.0dB @ 160Hz 147.0dB @ 195Hz 147.0dB @ 245Hz 146.0dB @ 315Hz 141.0dB @ 470Hz
PD6	BB2	06:23:15	06:28:15	50.9	drifting	8/11/98	80-800Hz -6dB/oct with 134dB @ 80Hz channel 1 :- fc=315, BW=470.
PD7	AN1	09:09:55	09:14:55	50.0	drifting	8/11/98	Ambient noise Partial shut-down for SS
PD7	NB1	09:15:40	09:20:40	50.0	drifting	8/11/98	128.6dB @ 58Hz 136.6dB @ 63Hz 124.9dB @ 193Hz 132.7dB @ 197Hz 121.1dB @ 332Hz 129.0dB @ 336Hz 125.4dB @ 466Hz 117.3dB @ 470Hz
PD7	NB2	09:23:15	09:28:48	50.0	drifting	8/11/98	148.0dB @ 80Hz 147.0dB @ 95Hz 147.0dB @ 125Hz 147.0dB @ 160Hz 147.0dB @ 195Hz 147.0dB @ 245Hz 146.0dB @ 315Hz 141.0dB @ 470Hz
PD7	BB2	09:29:40	09:34:40	50.0	drifting	8/11/98	80-800Hz -6dB/oct with 134dB @ 80Hz channel 1 :- fc=315, BW=470.
TOW6	NB6	11:35:50	13:14:33	51.0	3	8/11/98	155.0dB @ 80Hz 155.0dB @ 110Hz
ACOMMS NRL	RDS1	04:54:40	04:25:35	51.4	Anchored	9/11/98	
ACOMMS NRL	Outbound RDS1	06:52:00	~07:50	54.8	4	9/11/98	

Serial	Spectrum ID	Comex (UTC)	Finex (UTC)	Fish Depth (m)	SS Speed (kt)	Date	Comments
PD8	NB1	23:26:50	23:44:55	51.1	Drifting	10:11:98	Partial shut-down 128.6dB @ 58Hz 136.6dB @ 63Hz 124.9dB @ 193Hz 132.7dB @ 197Hz 121.1dB @ 332Hz 129.0dB @ 336Hz 125.4dB @ 466Hz 117.3dB @ 470Hz
PD8	BB2	23:46:35	23:52:05	51.0	Drifting	10/11/98	80-800Hz -6dB/oct with 134dB @ 80Hz channel 1 :- fc=315, BW=470.
TOW7	LFM1	03:16:20	04:13:55	50.5	4	10/11/98	LFM 780-880Hz Weight=rect Duration=0.5s Period=30s SPL=182dB Phase=0deg
ACOMMS NRL	RDS1	07:15:43	08:14:45	51.9	4	10/11/98	
ACOMMS NRL	RDS2	08:23:10	10:40:00	53.6	3.5	10/11/98	
ACOMMS NRL	RDS3	10:37:40	11:40:15	51.4	4.5	10/11/98	
ACOMMS NRL	RDS3	12:43:00	13:01:00	52.3	3.5	10/11/98	
ACOMMS NRL	RDS1	13:02:34	13:54:00	52.9	2.8	10/11/98	
ACOMMS NRL	RDS4	13:55:15	15:00:00	54.9	3.3	10/11/98	
ACOMMS NRL	RDS5	15:04:25	16:05:40	55.9	3.7	10/11/98	
ACOMMS NRL	RDS6	16:24:30	17:30:42	52.9	3.0	10/11/98	
ACOMMS NRL	RDS7	17:37:20	18:19:45	60.7	1.3	10/11/98	
ACOMMS NRL	RDS8	18:26:40	19:05:43	60.3	2.5	10/11/98	
ACOMMS NRL	RDS9	19:12:05	20:04:30	59.4	1.4	10/11/98	

8.2 Spectrum ID log

This log contains more detailed information on the signals emitted by the SRP projector. The source levels were estimated from the monitoring hydrophone located at close range to the projector.

SRP Spectra ID – Southern Surveyor

Note – refer to SRP log comments for achieved levels and projector depths

Spectrum	Description	F (Hz)	Level (dB)	Depth (m)	Duration (min)
AN1	Ambient Noise	N/A	N/A	N/A	5
NB1	Quiet Narrowband Spectrum	58 63 193 197 332 336 470 466	128.6 136.7 124.9 132.7 121.1 129.0 117.3 125.4	50	5
NB2	Max Narrowband Spectrum	80 95 125 160 195 245 315 470	148.0 148.0 148.0 147.0 147.0 147.0 146.0 141.0	50	5
BB1	Quiet Broadband Spectrum	80-800	-3 dB/oct 98 dB @ 80 Hz	50	5
BB2	Max Broadband Spectrum	80-800	-6 dB/oct 134 dB @ 80 Hz	50	5
MF1	Matched Field	70 95 145	142.5 152.5 151.5	~50	Continuous
MF2	Matched Field	70 110	154.0 150.0	~50	Continuous
MF3	Matched Field	80 110	155.0 155.0	~50	Continuous
NB3	Propagation Loss	245 315 470 590	167.1 178.2 170.3 171.0	~50	Continuous
NB4	Propagation Loss	55	153.2	~50	Continuous
NB5	Matched Field	95 110 125 143 160 173 195	148 148 148 148 148 148 148	50	Continuous

Spectrum	Description	F (Hz)	Level (dB)	Depth (m)	Duration (min)
NB6	MFP & Propagation Loss	80 110	155 155	50	Continuous Note: same as MF3
RDS1	Acoustic Comms NRL	-	-	50	Pre-determined Sequence
LFM1	Active Environmental Measurements	LFM 780-880Hz	182dB	50	Weight=rect Duration=0.5s Period=30s Phase=0
RDS2	Acoustic Comms NRL	-	-	50	Pre-determined Sequence
RDS3	Acoustic Comms NRL	-	-	50	Pre-determined Sequence
RDS4	Acoustic Comms NRL	-	-	50	Pre-determined Sequence
RDS5	Acoustic Comms NRL	-	-	50	Pre-determined Sequence
RDS6	Acoustic Comms NRL	-	-	50	Pre-determined Sequence
RDS7	Acoustic Comms NRL	-	-	50	Pre-determined Sequence
RDS8	Acoustic Comms NRL	-	-	50	Pre-determined Sequence
RDS9	Acoustic Comms NRL	-	-	50	Pre-determined Sequence

8.3 SRP hand log

The SRP hand log was taken by the SRP operators whenever the status of the SRP changed. The information in this log should be the same as that reported in the previous two logs, but is included for redundancy.

Sonar Research Projector
Deployment Log

Date	Time Local Time	SS (1)	Ship's Speed KTS	Comp In/Out (2)	Depth (m) (3)	Status (4)	Scope (m) (5)	Comments
1/11/98	19:31 [illegible]	0	3	N/A	50	D	60	RDS 2 TRIAL (TTCP) Typical Sea (Local Time)
	20.30	0	3	N/A		R		changed nip after 1/2 hour by 1m; SVP
3/11/98	12.30	0	0	N/A	55	D	54	[illegible] in water; testing signals
	14:30	0	0			R		
	15 45	0	0			D		Start [illegible] Run; Stationary
	21.10	0	3	N/A	56	D	64	"Comet" Run for ARITT
	21.38	0	3		55	N		1 meter payed out.
	22:11	0	3		55	N	63	wound in 2 m
	22 46	0	3		53	N	58	
	23 20	0	3			R		
4/11/98	9:45	0	4		50	D	66	Run No Comet MF3
	10:15	0	4		50	N	64	1 m change in scope
	10 49	0	4		49	N	67	2 m " " " Payed out.
	11 25	0	4		50	N	66	1 m " " " Retrieved
	11:55	0	4		54	N	68	2 m " " " Payed out
	12 35	0	4		50	N	65	1 m " " " Retrieved.
	13.20	0	4		50	N	63	1 m " " " Retrieved.
	13.53	0	4		50	N	65	1 m " " " Payed out
	14 45	0	6			R		Recovered; ship [illegible] slow to [illegible] while recovering!
6/11	13.59	1.5	0		50	D	53	PD2 Series; ship stationary; shut down
	14:43	1.5	2		~~55~~	R		Recovered at 2 KTS; ship started engines then recovered!
	15:35	1.5	0		51.4	D	53	PD4 Series.
	16:14	1.5				R		Recovered at 2 KTS after starting engines
	17:15	1	4		52	D	61	start TOW 4

(1) Sea state, (2) Depth Compensation In/Out. (3) Deployed Pinger Depth. (4) Action to deploy (D) / recover (R) / Change nip (N) etc
(5) Length of cable out.

Sonar Research Projector
Deployment Log

Date	Time	SS (1)	Ship's Speed KTS	Comp In/Out (2)	Depth (m) (3)	Status (4)	Scope (m) (5)	Comments
6.	17 57	1	3.5		50	N	59	[illegible] 2 m retrieved.
	[illegible]	1	3.5		50	N	57	Retrieved 1 m
	19:02	1	3.5		[illegible]	N	56	Retrieved 1M
	19:15	1	3			R		washed down with fresh water
	20:20	1	3		51.1	D	?	Lost Readout on Console & Computer Screen not showing cable out.
	20 50	1	3		50 6	N	?	Retrieved 1M
	21:18	1	3		49	N	'	Retrieve 1 m: display came back not reading.
	21 53	1	3		50	N		display reading OK afterwards; Payed out 1M
	22 16	1	3			R		
7/11	22:15	0	0		50	D	53	ship drifting
	23 35	0	0			R		" "
3/11	13 30	0	0		50	D	53	ship drifting : Engines Stopped
	14 50	0	0			R		ship stationary,
	15 30	0	0		5.1	D		" "
	16 00	0	0		50	R		" "
	18 30	0	0		50	D		" "
	19.05	0	0		50	R		" "
	21:13	0	3.3		50	D	62	30° angle on cable : Surface current
	21.40	0	3		50	N	?	~~[illegible]~~ "Cable Payout" Reset itself : Scope not known
	22:00	0	3		50	N	?	" " "
	22.30	0	3.5		50	N	?	"

(1) Sea state, (2) Depth Compensation In/Out. (3) Deployed Pinger Depth. (4) Action to deploy (D) / recover (R) / Change nip (N) etc
(5) Length of cable out.

8.4 Physical parameters

This sub-section contains information that was recorded by the SRP non-acoustic sensors. We include here, for each day of projector operations:

- SRP depth (from depth sensor) and cable length,
- tow ship speed (kn) and heading (degrees),

where the x axis is the decimal date starting at midnight (eg. 1.5 is 1 November 1998 at 12:00 UTC).

The files containing this information are located on the Environmental CD, and are named CABLE.DAT, SOG.DAT and PROMS.DAT. These files are ASCII, and the information in the files is stored as follows:

CABLE.DAT:

Code (021), date, time, cable length (m)

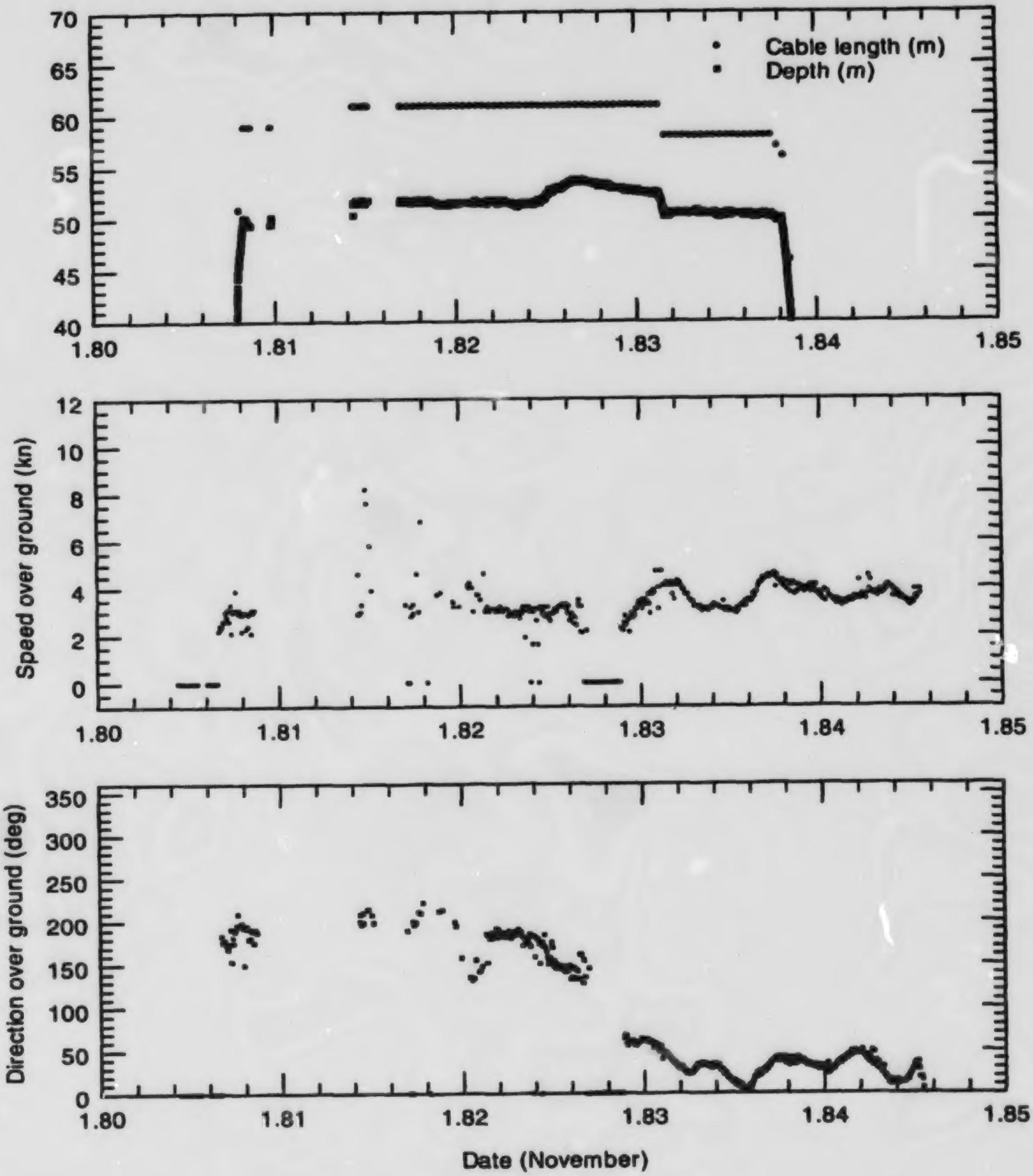
SOG.DAT:

Code (036), date, time, speed over ground of tow ship (kn), heading over ground of tow ship (deg)

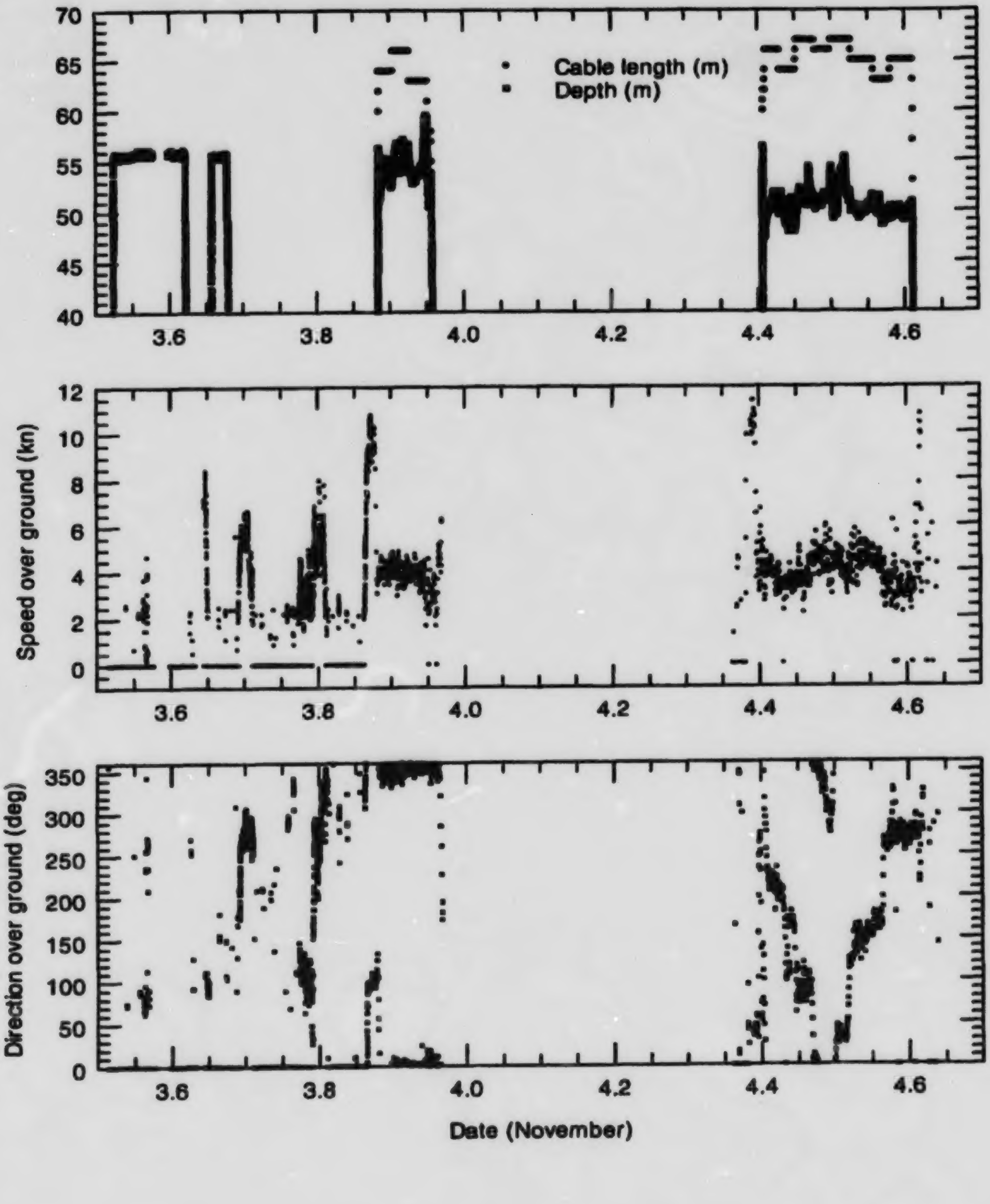
PROMS.DAT:

Code (027), date, time, tilt in degrees (Tx), tilt in degrees (Ty), temperature inside projector (°C), projector depth (m), accelerometer (Ax), accelerometer (Ay), accelerometer (Az), empty field (00), time

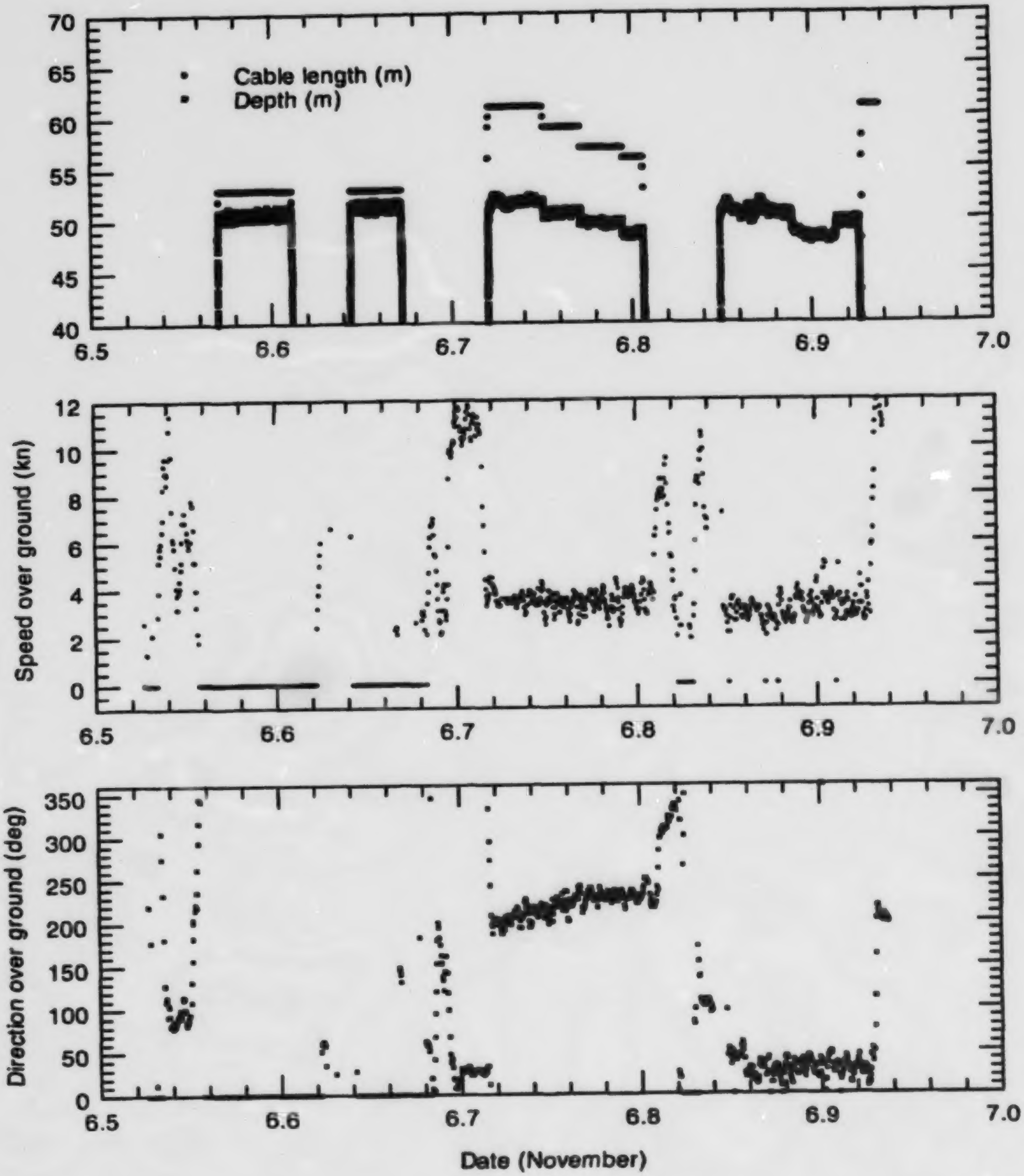
1 Nov 98


Cable length (m)
Depth (m)
70
65
60
55
50
45
40
1.80
1.81
1.82
1.83
1.84
1.85
Speed over ground (kn)
12
10
8
6
4
2
0
1.80
1.81
1.82
1.83
1.84
1.85
Direction over ground (deg)
350
300
250
200
150
100
50
0
1.80
1.81
1.82
1.83
1.84
1.85
Date (November)

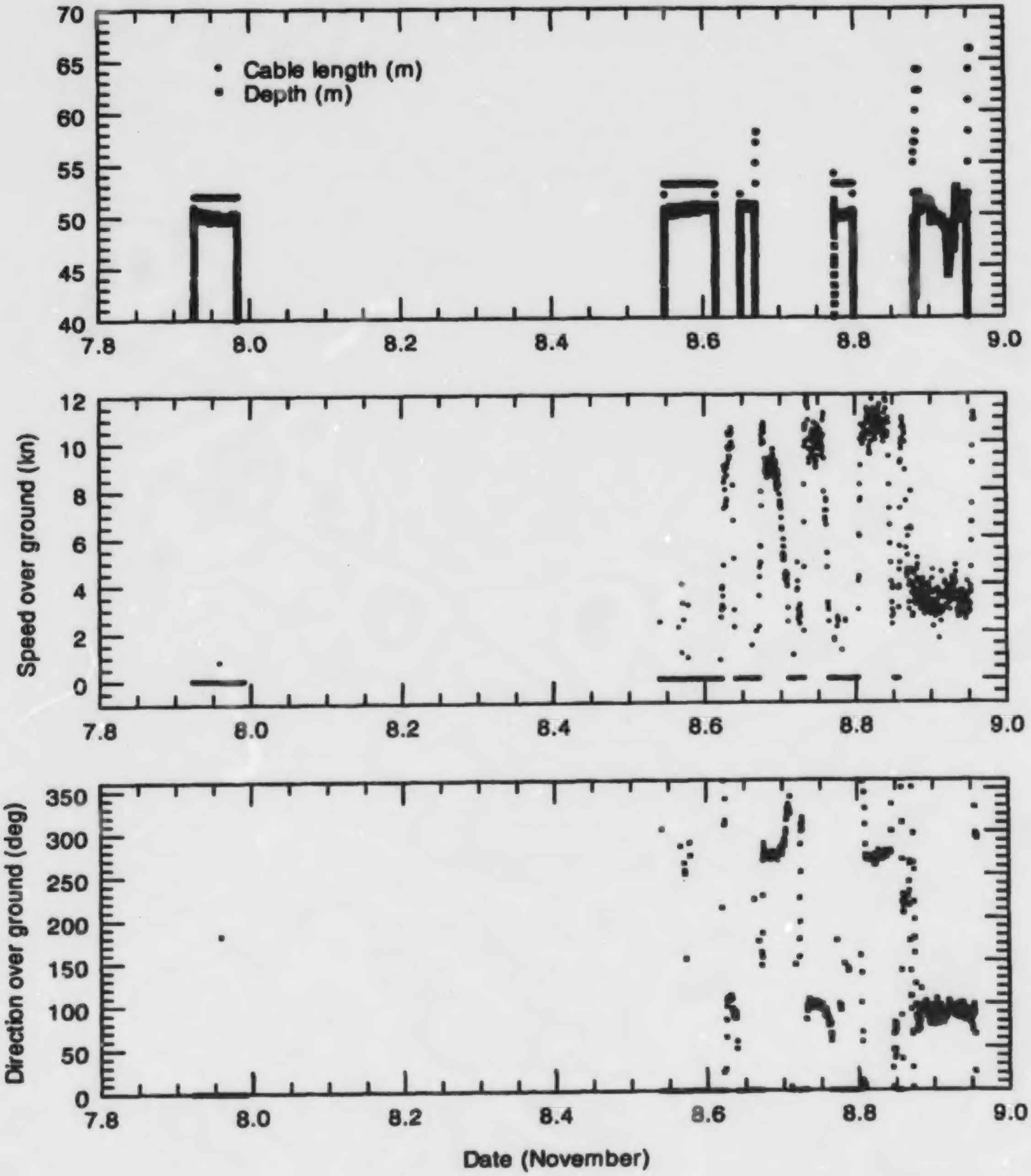
3,4 Nov 98


70
65
60
55
50
45
40
● Cable length (m)
■ Depth (m)
3.6
3.8
4.0
4.2
4.4
4.6
Speed over ground (kn)
12
10
8
6
4
2
0
Direction over ground (deg)
350
300
250
200
150
100
50
0
Date (November)

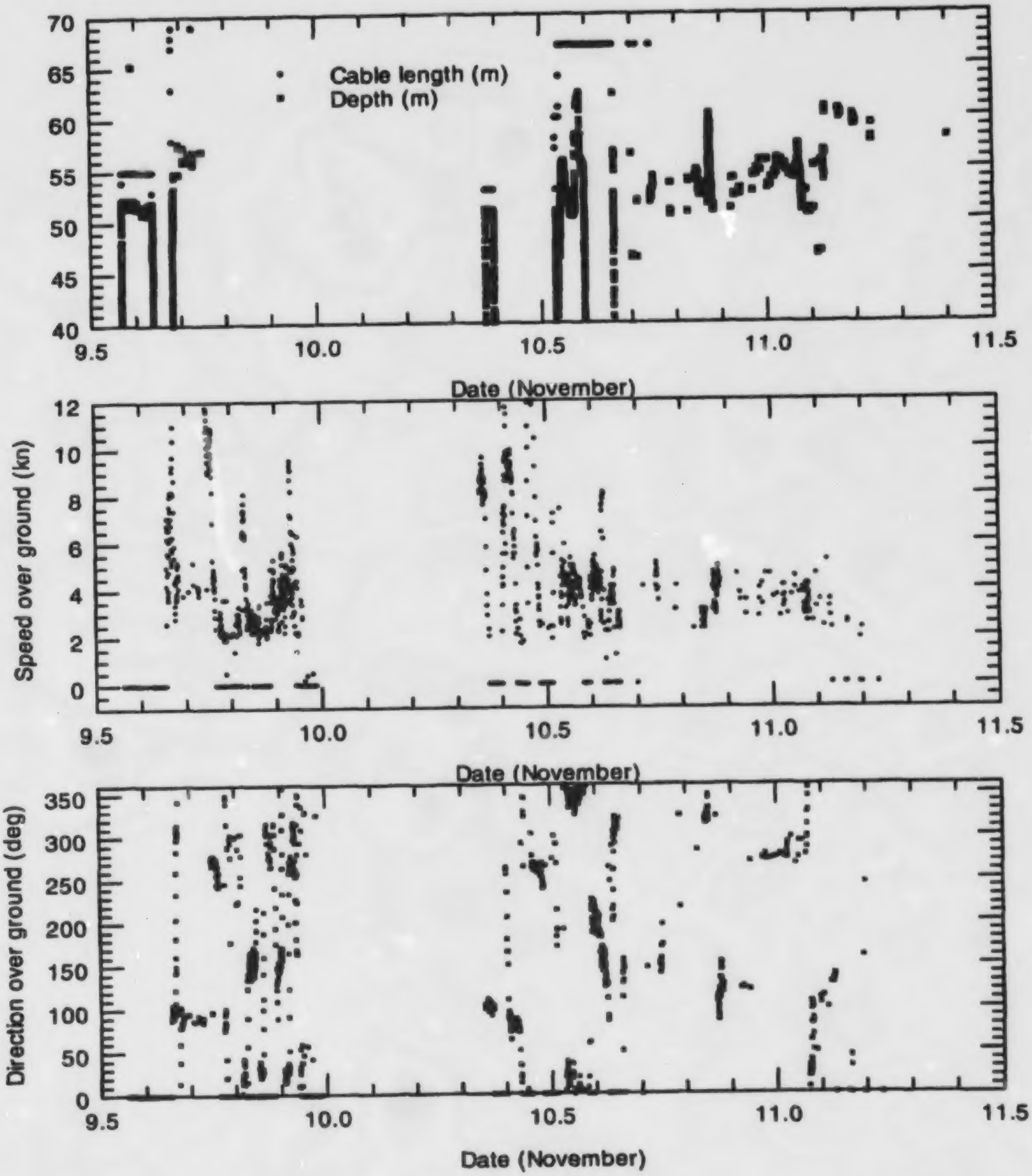
6 Nov 98


Cable length (m)
Depth (m)
70
65
60
55
50
45
40
6.5
6.6
6.7
6.8
6.9
7.0
Speed over ground (kn)
12
10
8
6
4
2
0
6.5
6.6
6.7
6.8
6.9
7.0
Direction over ground (deg)
350
300
250
200
150
100
50
0
6.5
6.6
6.7
6.8
6.9
7.0
Date (November)

7,8 Nov 98


70
65
60
55
50
45
40
• Cable length (m)
• Depth (m)
7.8
8.0
8.2
8.4
8.6
8.8
9.0
Speed over ground (kn)
12
10
8
6
4
2
0
7.8
8.0
8.2
8.4
8.6
8.8
9.0
Direction over ground (deg)
350
300
250
200
150
100
50
0
7.8
8.0
8.2
8.4
8.6
8.8
9.0
Date (November)

9,10 Nov 98


Cable length (m)
Depth (m)
70
65
60
55
50
45
40
9.5
10.0
10.5
11.0
11.5
Date (November)
Speed over ground (kn)
12
10
8
6
4
2
0
9.5
10.0
10.5
11.0
11.5
Date (November)
Direction over ground (deg)
350
300
250
200
150
100
50
0
9.5
10.0
10.5
11.0
11.5
Date (November)

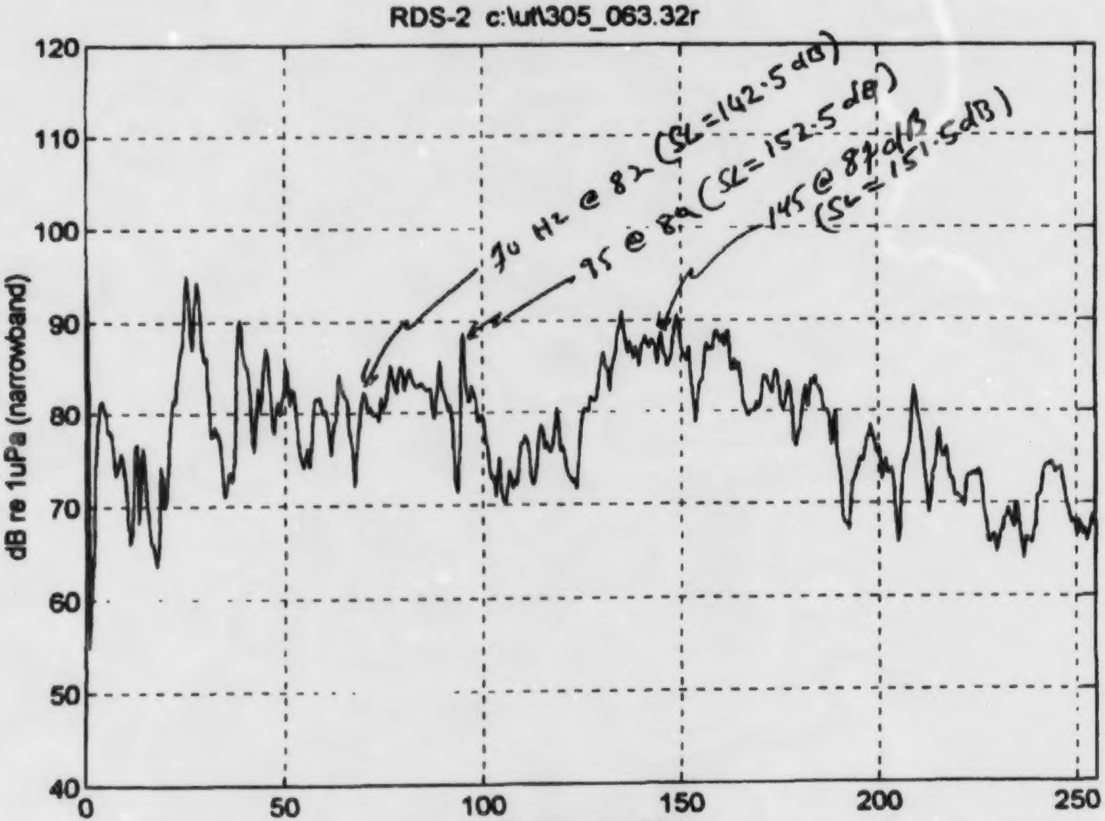
8.5 SRP data samples

The following data samples were recorded with the US Y-shaped Ulite array. The estimated source level is indicated for each projected tone.

SS SOURCE TOW OF THREE TONES PLOT # 9

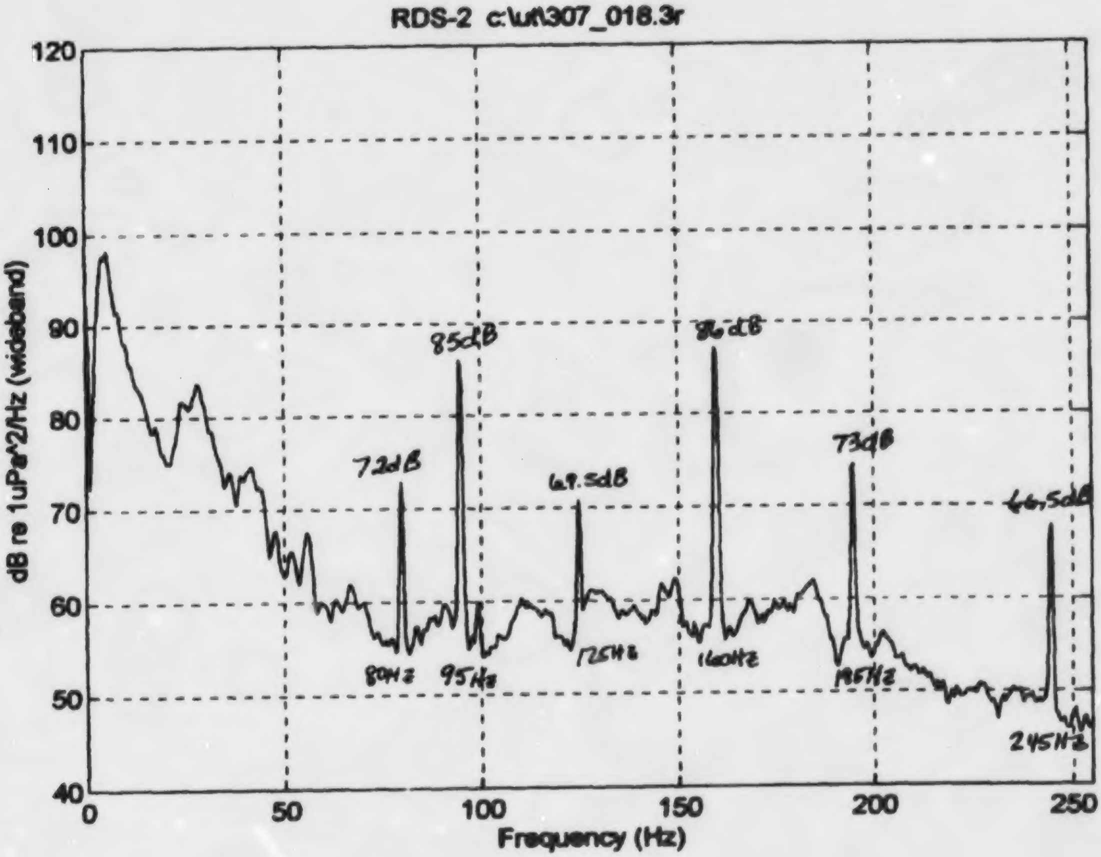
713240 - 723480

TONES: 70 HZ @ 142.5 dB 95 HZ @ 152.5, 145HZ @ 151.5



PD 1
NB 2
Frames 400,000 - 450,000

Plot #25



9. CHARGE RUNS

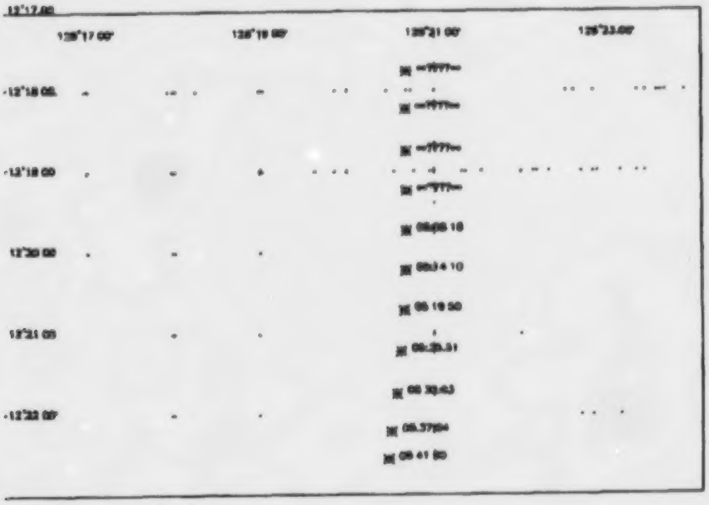
9.1 Buoy Environmental Measurement - Charge Run BEM-1

On November 1, 1998 from 0445UTC until 0545UTC the Southern Surveyor conducted a SUS charge run consisting of 11 explosions over a range of approximately 5 nm. Mk7 SUS charges (30 gm) were set at 60 feet and were deployed at approximately 0.5 nm intervals beginning at 12°17'S, 128°20.5'E. Southern Surveyor headed due south with the last SUS being dropped near sonobuoy Post E. A P3C deployed and recorded sonobuoys for this experiment. Plan details are given in the Trials Plan Annex B Appendix C.

The table below lists the drop and detonation times of each SUS. Lat/Lon and approximate range from the first SUS drop are also given. The plot chart at bottom shows the drop locations and the detonation times.

SUS run 1 November 1998 (BEM1)

SUS#	drop time (UTC)	boom time (UTC)	Latitude (S) @ drop	Longitude (E) @ drop	Approx. range (nm)
1	04:46:13	?	12 17.7625	128 20.6770	0.0
2	04:50:48	?	12 18.2289	128 20.6687	0.5
3	04:56:43	?	12 18.7519	128 20.6756	1.0
4	05:02:28	?	12 19.2440	128 20.6782	1.5
5	05:08:09	05:08:18	12 19.7360	128 20.6796	2.0
6	05:13:52	05:14:10	12 20.2222	128 20.6731	2.5
7	05:19:38	05:19:50	12 20.7100	128 20.6572	3.0
8	05:25:40	05:25:51	12 21.2163	128 20.6240	3.5
9	05:31:46	05:32:03	12 21.7388	128 20.5713	4.0
10	05:36:5	05:37:04	12 22.2100	128 20.5136	4.5
11	05:40:52	05:41:00	12 22.5500	128 20.4762	5.0



9.2 Land Based Seismic Detection-Charge Run SD-1

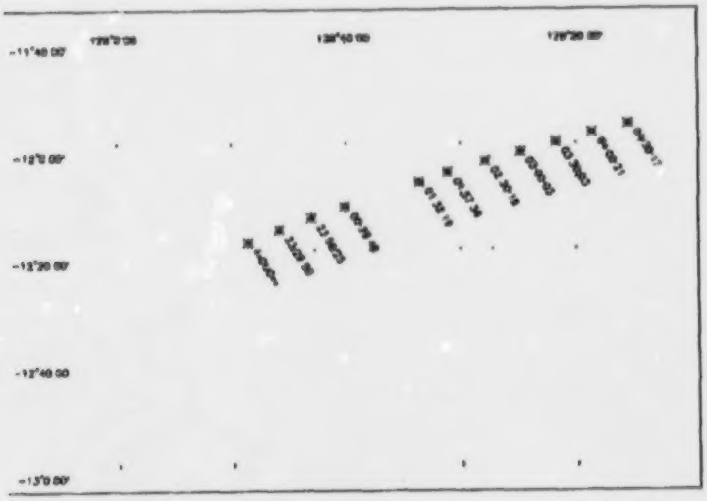
A charge run was conducted primarily for Marshall Hall and his geophone detection experiment (cf. Annex K of the Trials Plan). The run consisted of dropping 11, 0.82 kg, Mk 61 SUS charges set for detonation at 60 feet. One of the SUS charges (first one) was a DUD and it failed to detonate. The dud charge was not replaced.

The table below shows the drop and detonation times, and Lat/Lon of the drop point. The plot at the bottom of the page shows the drop positions and detonation times.

The ship was concerned about the detonation impacts, and this resulted in a gap in the SUS charge drops. The problem was solved by adding a paper drogue to each SUS charge which caused it to sink more slowly and thus allow greater ship-SUS separation at the detonation.

SUS run 2 November 1998 (SD1)

SUS#	**drop time** **(UTC)**	**boom timE** **(UTC)**	**Latitude** **@drop**	**Longitude** **@drop**
1	23:00:00	**DUD**	12 18.6664	128 22.7640
2	23:29:48	23:29:50	12 16.2327	128 28.2781
3	23:59:23	23:59:25	12 14.0191	128 33.8860
4	00:28:42	00:28:48	12 11.9637	128 39.7784
5	01:32:11	01:32:19	12 07.4440	128 52.7717
6	01:56:38	01:57:36	12 05.6869	128 57.7554
7	02:29:52	02:30:18	12 03.5763	129 04.3050
8	02:59:52	03:00:03	12 01.7766	129 10.3149
9	03:29:47	03:30:03	11 59.9888	129 16.4950
10	03:59:45	04:00:21	11 58.2500	129 22.7490
11	04:29:47	04:30:17	11 56.6363	129 29.0422



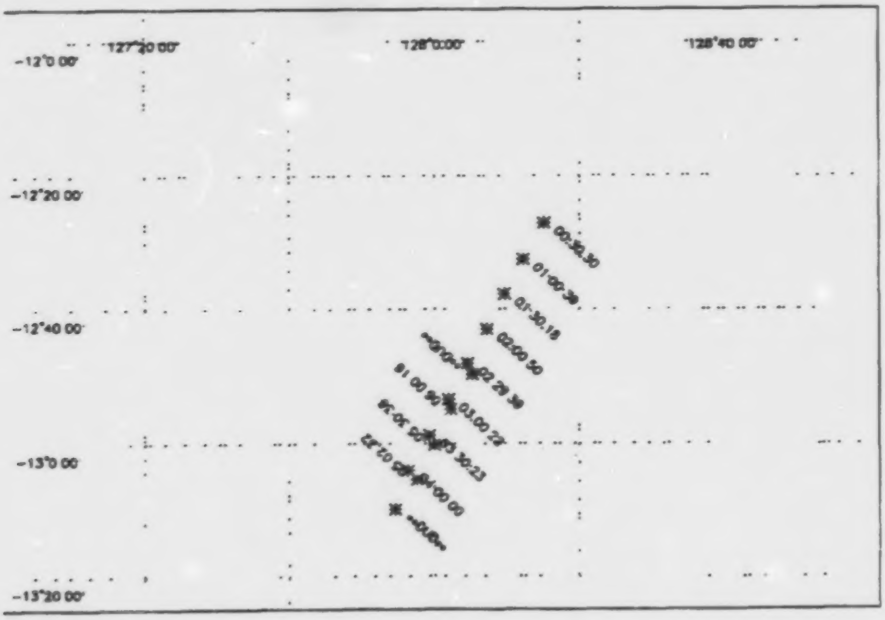
9.3 Land Based Seismic Detection-Charge Run SD-2

On Nov. 5, a charge run was conducted primarily for Marshall Hall and his geophone detection experiment (cf. Annex K of the Trials Plan). The run consisted of dropping 13, 0.82 kg, Mk 61 SUS charges set for detonation at 60 feet. One of the SUS charges was a DUD and failed to detonate. The last charge may also have been a dud. There is some doubt as to whether or not this charge detonated. Wind and sea conditions during this run were bad, winds over 30 kts. The run was partially repeated on the return.

The table below shows the drop and detonation times, and Lat/Lon of the drop point. The plot at the bottom of the page shows the drop positions and detonation times.

The ship was concerned about the detonation impacts, and paper drogues were attached to each SUS charg to make them sink more slowly and thus allow greater ship-SUS separation at the detonation.

SUS#	Drop (UTC)	Det. (UTC)	Drop Lat (S)	Drop Lon (E)
1	00:29:55	00:30:30	12 27.0962	128 15.0345
2	00:59:56	01:00:39	12 32.5391	128 12.1930
3	01:29:47	01:30:18	12 37.7390	128 09.6008
4	01:59:48	02:00:50	12 42.9984	128 07.2009
5	02:29:06	02:29:39	12 48.0900	128 04.5538
6	02:59:50	03:00:22	12 53.4422	128 01.8960
7	03:29:50	03:30:23	12 58.7600	127 59.2661
8	03:59:56	04:00:00	13 04.0231	127 56.3158
9	04:29:55	**DUD**	13 09.8913	127 54.6054
10	05:01:59	05:02:32	13 05.3763	127 57.6045
11	05:29:57	05:30:36	13 00.2227	127 59.9157
12	05:59:54	06:00:16	12 54.8971	128 02.2185
13	06:29:49	??DUD??	12 49.7300	128 05.1400



9.4 GHCG Charge Run

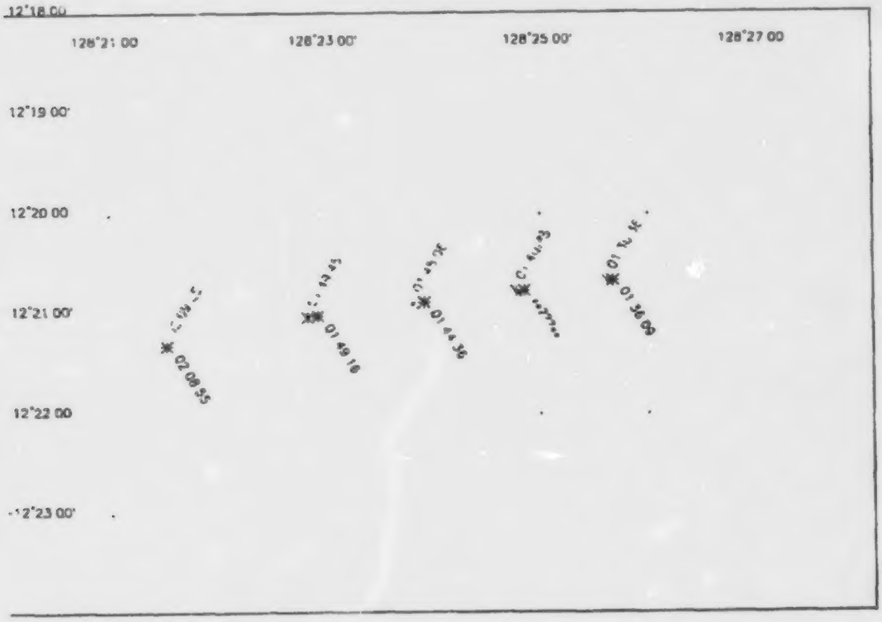
On 11 Nov 98, at ~1345 UTC a charge run was conducted primarily for Chris Gillard and Garry Heard. The run consisted of dropping 10, 30 g, Mk 7 SUS charges set for detonation at 60 feet. All of the SUS detonated properly. There were two instances where the times were not properly recorded.

The table below shows the drop and detonation times, and Lat/Lon of the drop point. The plot at the bottom of the page shows the drop positions and detonation times.

The only receiver operating is likely to be the ULRICA VLA and the charge run was conducted on an in-bound radial to this array. The charges were dropped at nominal ranges of 5, 4, 3, 2, and 1 nm from the ULRICA VLA. The purpose of this experiment was to attempt to obtain some seismo-acoustic arrivals and hence determine bottom properties.

GHGC - seismo-acoustic arrivals experiment

number	Time drop	Time implosion	lat	long
1	**???**	01:36:09	12 20.6796	128 25.6761
2	01:36:27	01:36:36	12 20.6867	128 25.6269
3	01:39:58	**???**	12 20.7751	128 24.8508
4	01:40:25	01:40:35	12 20.7848	128 24.7765
5	01:44:25	01:44:36	12 20.8892	128 23.9234
6	01:44:55	01:45:06	12 20.9024	128 23.8203
7	01:49:06	01:49:16	12 21.0236	128 22.9263
8	01:49:35	01:49:45	12 21.0368	128 22.8308
9	02:08:44	02:08:55	12 21.3170	128 21.5220
10	02:09:16	02:09:25	12 21.3175	128 21.5223



10. AIRCRAFT LOGS

This section contains the non-acoustic information collected on board the Australian RAAF Maritime Patrol Aircraft (MPA) during its 2 sorties. The first sortie started on 31 October 1998 and continued into 1 November 1998, and the second occurred on 3 November 1998.

This section contains:

- A sonobuoy log, which includes the drop time and location and sonobuoy types of the sonobuoys deployed by the MPA during both sorties;
- A listing of the eXpendable BathyThermographs (XBTs) recorded by the MPA;
- A log of ship contacts, which includes ship positions, ship types, and estimates of ship direction and speed.

The scientists from DERA indicated that a seismic research vessel was present during both sorties. The vessel is thought to be the GEKO Myer. The ship towed a 15-m array with 8 airguns which fired every six seconds. DERA reports that the firing continued for a period of 20 hours along a 100-km run, after which the ship turned and resumed firing after a 1.5 hour wait.

RDS 2 Trial, Buoy Deployments for the P3C Sorties

Sortie 1 31/10 and 1/11/98

Site	Buoy Drop Time (Zulu)	Buoy Deployment Location	Buoys Deployed							
			SSQ57A					DIFAR	BARRA	BATHY
			0dB	20dB	40dB	60dB	70dB			
Trawler	23 55 26	12°16'30"S 128°56'40"E		*	*	*				
Post B	00 11 29	12°35'29"S 128°57'10"E	*	*				*	*	*
Post C	00 53 51	13°20'38"S 128°19'08"E	*	*				*	*	*
Pleasure Boat	01 48 07	13°30'22"S 127°08'48"E		*	U/S					
Post D	02 29 18	12°21'16"S 127°18'16"E	?	*				*	*	*
Post A	03 21 32	11°50'00"S 128°26'50"E	*	*				*	*	*
Merchant Ship	03 46 16	11°55'27"S 128°41'27"E	*	*	*					
Post E	04 32 57	12°28'03"S 128°26'42"E	*	*	*	*	*	U/S	*	*

Sortie 2 3/11/98

Site	Buoy Drop Time (Zulu)	Buoy Deployment Location	Buoys Deployed							
			SSQ57A					DIFAR	BARRA	BATHY
			0dB	20dB	40dB	60dB	70dB			
Post B	03.23 40	12°35'24"S 128°57'13"E	*	*				*	*	*
Tug	03 52 12	11°53'12"S 129°20'42"E		*	*					
Survey Vessel	03 59 56	11°40'46"S 129°21'20"E		*	*	*			*	

*	Buoy deployed and working
?	Buoy deployed and questionable if working
U/S	Buoy deployed and unserviceable

RF 16, Sortie 1, Post A
0322Z 01 Nov 98
11°49S 128°21E

Depth (ft)	Temp (°F)
Surface	N/A
25	87.5
50	87.0
75	86.5
100	86.0
125	86.0
150	86.0
175	85.5
200	84.5
225	84.5
250	83.5
275	83.5
300	83.5
325	83.5
350	83.5
375	83.5
400	83.5
425	83.5
450	83.5
475	83.5
500	83.5
525	83.5
550	83.5
575	83.0
600	83.0
625	83.0
650	83.0
675	83.0
700	83.0
725	83.0
750	83.0
775	83.0
800	83.0
825	83.0
850	83.0
875	83.0
900	83.0
925	83.0
950	83.0
975	83.0
1000	83.0

RF 12, Sortie 1, Post B
0012Z 01 Nov 98
12°35S 128°57E

Depth (ft)	Temp (°F)
Surface	N/A
25	86.5
50	86.5
75	86.5
100	85.0
125	83.5
150	83.0
175	82.0
200	82.0
225	82.0
250	82.0
275	82.0
300	82.0
325	82.0
350	82.0
375	82.0
400	82.0
425	82.0
450	82.0
475	82.0
500	81.5
525	81.5
550	81.5
575	81.5
600	81.5
625	81.5
650	81.5
675	81.5
700	81.5
725	81.5
750	81.5
775	81.5
800	81.5
825	81.5
850	81.5
875	81.5
900	81.5
925	81.5
950	81.5
975	81.5
1000	81.5

RF 14, Sortie 1, Post C
0055Z 01 Nov 98
13°20S 128°18E

Depth (ft)	Temp (°F)
Surface	N/A
25	85.5
50	85.5
75	85.5
100	85.0
125	84.5
150	81.5
175	81.5
200	81.5
225	81.5
250	81.5
275	81.5
300	81.5
325	81.5
350	81.5
375	81.5
400	81.5
425	81.5
450	81.5
475	81.5
500	81.5
525	81.5
550	81.5
575	42.0
600	55.0
625	40.0
650	45.5
675	72.5
700	72.5
725	76.0
750	44.5
775	47.5
800	52.0
825	46.0
850	34.5
875	72.0
900	41.0
925	46.5
950	68.0
975	76.5
1000	45.0

RF 14, Sortie 1, Post D
0230Z 01 Nov 98
12°21S 127°14E

Depth (ft)	Temp (°F)
Surface	N/A
25	86.0
50	85.5
75	84.5
100	83.0
125	82.0
150	81.5
175	81.5
200	81.0
225	81.0
250	81.0
275	81.0
300	81.0
325	81.0
350	81.0
375	81.0
400	81.0
425	81.0
450	81.0
475	81.0
500	81.0

RF 12, Sortie 1, Post E
0433Z 01 Nov 98
12°22S 128°20E

Depth (ft)	Temp (°F)
Surface	N/A
25	87.5
50	86.5
75	86.0
100	85.5
125	85.0
150	84.5
175	84.0
200	82.5
225	82.5
250	82.0
275	81.5
300	81.5
325	27.5
350	55.5
375	64.0
400	50.0
425	79.5
450	69.5
475	26.5
500	37.0
525	63.5
550	49.0

RF 12, Sortie 2, Post B
0325Z 03 Nov 98
12°35S 128°57E

Depth (ft)	Temp (°F)
Surface	N/A
25	89.0
50	86.5
75	86.5
100	86.5
125	85.0
150	83.5
175	82.5
200	81.5
225	81.5
250	81.5
275	81.5
300	82.0
325	82.0
350	82.0
375	82.0
400	82.0
425	82.5
450	82.5
475	82.5
500	82.5
525	82.5
550	82.5
575	83.0
600	83.0
625	83.0
650	83.0
675	83.0
700	83.0
725	83.0
750	83.0
775	83.0
800	83.0
825	83.0
850	83.0
875	83.0
900	83.0
925	83.0
950	83.0
975	83.0
1000	83.0

RDS 2 Trial, Ship Contacts for the P3C Sorties

Sortie 1 31/10 and 1/11/98

Time (Zulu)	Ship Position	Ship Type	Comments
23:55	12°17'S 128°56'E	Trawler*	040° at 8 kts. Transiting
01:23	13°36'S 127°35'E	Trawler	360° at 6 kts. Trawling
01:28	13°43'S 127°42'E	Trawler	060° at 8 kts. Transiting
01:28	13°45'S 127°38'E	Trawler	045° at 8 kts. Transiting
01:40	13°27'S127°09'E	Pleasure Boat*	B55 Paspali 3. 240° at 10 kts. Reg Darwin
01:59	13°36'S 126°44'E	Trawler	255° at 7 kts. Trawling
02:06	13°15'S 126°23'E	Tug	260° at 8 kts. Ocean going tug.
03.45	11°56'S 128°36'E	Merchant Vessel*	Arktis Atlantic. 295° at 13 kts. Copenhargen
06.15	11°19'S 129°24'E	Patrol Boat	140° at 13 kts
06.22	11°36'S 129°48'E	Tug	040° at 12 kts
06:25	11°35'S 129°53'E	Trawler x 4	Four stationary boats.
06:33	12°25'S 129°44'E	FFG	HMAS Canberra and HMAS Newcastle. 230° at 14 kts
06:40	12°16'S 129°58'E	Survey Vessel	

Sortie 2 11/3/98 Sortie stopped early due to PC3 going U/S. Ships viewed from high altitude.

Time (Zulu)	Ship Position	Ship Type	Comments
03:45	12°17'S 129°19'E	Sailing Boat	
03:47	12°06'S 129°11'E	Sailing Boat	270° at 4 kts
03.48	13°05'S 129°04'E	Unknown	270° at 8 kts
03.50	11°53'S 129°17'E	Tug*	080° at 11 kts. Sea going tug.
04.05	11°40S 129°20E	Survey vessel*	120° at 8 kts. Air guns going
04.20	11°30S 128°07E	Unknown	288° at 10 kts
04·20	11°41S 129°56E	Trawler	090° at 6 kts

* Buoys deployed to get acoustic signature

11. TAPE LOGS

This section attempts to group together the different tape logs kept by the various crews of RDS-2, for each system put in the water. When no tape log exists, approximate start and finish recording times were estimated The owner of any specific system will have to be contacted directly if specific data sets are desired. Several arrays did not successfully record data (such as the FODA and the UK geophone array (though data were collected from an individual geophone unit), and therefore no tape logs are listed for these systems. Similarly, no data are available for the ABES array, which was lost at sea. The last sub-section is the tape log for the Sonar Research Projector (SRP).

11.1 SSC OCTOPUS

First deployment:
- Estimated start time: 30 Oct 98, 22:35Z
- Estimated finish time: 31 Oct 98, 07:30Z

Second deployment:
- Estimated start time: 3 Nov 98, 03:00Z
- Estimated finish time: 3 Nov 98, 07:30Z

Third deployment:
- Estimated start time: 5 Nov 98, 01:30Z
- Estimated finish time: 5 Nov 98, 19:30Z

Fourth deployment:
- Estimated start time: 8 Nov 98, 03:00Z
- Estimated finish time: 8 Nov 98, 21:30Z

Fifth deployment:
- Estimated start time: 9 Nov 98, 10:30Z
- Estimated finish time: 9 Nov 98, 15:30Z

11.2 SEANOISE buoy

First deployment:
- Estimated start time: 1 Nov 98, 07:46Z
- Estimated finish time: 6 Nov 98, 07:00Z??

Second deployment:
- Estimated start time: 7 Nov 98, 23:40Z
- Estimated finish time: 10 Nov 98, xx:xxZ??

11.3 SSC ULITE array

A complete tape log is included within the Ulite log, in the Scientific Log section.

11.4 ULRICA HLAs

Ulrica HLA deployment 1 recording log

21:30 - 22:30 Pacific Conquest circling array, range 500m, speed 3 kts
23:00 - 23:30 Light bulb drops
23:58 - 00:44 More light bulbs (array powered up by acoustic link)
Single files on the hour: Ambient noise measurements.
NB the trials ships are not shut down and may be close to the array.

Pre-programmed recording times (NB minimum recording 128 MB ~ 8 mins):

19:54:00	29/10/98	19:56:00	29/10/98	0
21:30:00	29/10/98	22:30:00	29/10/98	0
23:00:00	29/10/98	23:30:00	29/10/98	0
1:00:00	30/10/98	1:02:00	30/10/98	0
2.00:00	30/10/98	2:02:00	30/10/98	0
3:00:00	30/10/98	3:02:00	30/10/98	0
4:00:00	30/10/98	4:02:00	30/10/98	0
5.00:00	30/10/98	5:02:00	30/10/98	0
6:00:00	30/10/98	6:02.00	30/10/98	0
7:00:00	30/10/98	7:02:00	30/10/98	2

Record 1 Start time = 19:54:0 29/10/98 Stop time = 19:56:0 29/10/98

Filename = d:\data\29101954.bin Start time = 19:54:04
Data file closed at 20:6.11

Record 2 Start time = 21:30:0 29/10/98 Stop time = 22:30:0 29/10/98

Filename = d:\data\29102130.bin Start time = 21:30:04
Data file closed at 21:42.11

Filename = d:\data\29102139.bin Start time = 21:39:01
Data file closed at 21:51:2

Filename = d:\data\29102147.bin Start time = 21:47:58
Data file closed at 21:59:58

Filename = d:\data\29102156.bin Start time = 21:56:55
Data file closed at 22:8:55

Filename = d:\data\29102205.bin Start time = 22:05:52
Data file closed at 22:17:53

Filename = e:\data\29102214.bin Start time = 22:14:49
Data file closed at 22.26:26

Filename = e:\data\29102223.bin Start time = 22:23:45

```
           Data file closed at 22 35 22

Record 3   Start time = 23 0 0 29/10/98        Stop time = 23:30:0 29/10/98

           Filename = e:\data\29102300 bin   Start time = 23:00:04
           Data file closed at 23 11·46

           Filename = e:\data\29102309.bin   Start time = 23:09:01
           Data file closed at 23 20.38

           Filename = e \data\29102317 bin   Start time = 23:17:58
           Data file closed at 23 29 35

           Filename = e.\data\29102326.bin   Start time = 23:26:55
           Data file closed at 23 38 30

Record -   Acoustic Crash Record at 23 57.17 29/10/98

           Filename = e:\data\29102357 bin   Start time = 23:57:22
           Data file closed at 0 9 3
           Acoustic Record started at 0·9 3 on 30/10/98

           Filename = e:\data\30100006.bin   Start time = 00.06·19
           Data file closed at 0 17 53
           Acoustic Record started at 0 17 53 on 30/10/98

           Filename = e \data\30100015 bin   Start time = 00.15:16
           Data file closed at 0 26 50
           Acoustic Record started at 0.26:50 on 30/10/98

           Filename = e:\data\30100024.bin   Start time = 00:24:12
           Data file closed at 0 35 47
           Acoustic Record started at 0.35:47 on 30/10/98

           Filename = e \data\30100033 bin   Start time = 00.33:09
           Data file closed at 0 44 44
           Acoustic Record stopped at 0 44 44 on 30/10/98

Record 4   Start time = 1 0 0 30/10/98   Stop time = 1:2:0 30/10/98

           Filename = e:\data\30100100.bin   Start time = 01:00:04
           Data file closed at 1.11.46

Record 5   Start time = 2 0 0 30/10/98   Stop time = 2:2:0 30/10/98

           Filename = e:\data\30100200 bin   Start time = 02.00:04
           Data file closed at 2 11 46

Record 6   Start time = 3 0 0 30/10/98   Stop time = 3.2:0 30/10/98

           Filename = e \data\30100300.bin   Start time = 03.00:04
           Data file closed at 3 11 46
```

```
Record 7     Start time = 4:0:0 30/10/98   Stop time = 4:2:0 30/10/98

             Filename = e:\data\30100400.bin    Start time = 04:00:04
             Data file closed at 4:11:49

Record 8     Start time = 5:0:0 30/10/98   Stop time = 5:2:0 30/10/98

             Filename = f:\data\30100500.bin    Start time = 05:00:04
             Data file closed at 5:11:47

Record 9     Start time = 6:0:0 30/10/98   Stop time = 6:2:0 30/10/98

             Filename = f:\data\30100600.bin    Start time = 06:00:04
             Data file closed at 6:11:47

Record 10    Start time = 7:0:0 30/10/98   Stop time = 7:2:0 30/10/98

             Filename = f:\data\30100700.bin    Start time = 07:00:04
             Data file closed at 7:11:47
```

Ulrica HLA deployment 2 recording log

14:20 - ? SUS charge experiments from Southern Surveyor
16.50 - 17:43 Ambient noise measurement, ships shutting down,
Silent state at 17 30
Single files on the hour: Ambient noise measurements.
NB the trials ships are not shut down and may be close to the array.
08:00 SUS charge experiments
10:00 - 10 15 Light bulb drops - unsuccessful
10 16 - 10 40 Circle of array by Pacific Conquest at range 500m, 5 kts

Pre-programmed recording times (NB minimum recording 128 MB ~ 8 mins)

13:26:00	1/11/98	13.28:00	1/11/98	0
14:00:00	1/11/98	19:10.00	1/11/98	0
20 00.00	1/11/98	20:02:00	1/11/98	0
21:00:00	1/11/98	21:02:00	1/11/98	0
22:00:00	1/11/98	22 02.00	1/11/98	0
23.00:00	1/11/98	23:02:00	1/11/98	0
0:0:0	2/11/98	0 0 2	2/11/98	0
1 00:00	2/11/98	1 02:00	2/11/98	0
2:00 00	2/11/98	2 02 00	2/11/98	0
3:00 00	2/11/98	3 02:00	2/11/98	0
4:00:00	2/11/98	4:02 00	2/11/98	0
5:00 00	2/11/98	5:02 00	2/11/98	0
6.00:00	2/11/98	6:02:00	2/11/98	0
7:00:00	2/11/98	7 02:00	2/11/98	0
8:00:00	2/11/98	11:00 00	2/11/98	2

Record 1 Start time = 13 26 0 1/11/98 Stop time = 13.28:0 1/11/98
Filename = c:\data\01111326.bin Start time = 13:26:04
Data file closed at 13 37.41

Record 2 Start time = 14:0.0 1/11/98 Stop time = 19 10:0 1/11/98

Filename = c:\data\01111400.bin Start time = 14:00:04
Data file closed at 14:11:41

Filename = c.\data\01111409 bin Start time = 14:09:01
Data file closed at 14:20:37

Filename = c \data\01111417 bin Start time = 14:17:58
Data file closed at 14 29 33

Filename = c \data\01111426.bin Start time = 14 26 55
Data file closed at 14 38.31

Filename = c:\data\01111435.bin Start time = 14:35:52
Data file closed at 14 47 27

```
Filename = c:\data\01111444.bin    Start time = 14:44:49
Data file closed at 14:56:25

Filename = c:\data\01111453.bin    Start time = 14:53:45
Data file closed at 15:5:21

Filename = c:\data\01111502.bin    Start time = 15:02:42
Data file closed at 15:14:18

Filename = c:\data\01111511.bin    Start time = 15:11:39
Data file closed at 15:23:16

Filename = c:\data\01111520.bin    Start time = 15:20:36
Data file closed at 15:32:14

Filename = c·\data\01111529.bin    Start time = 15:29:33
Data file closed at 15 41 9

Filename = c·\data\01111538.bin    Start time = 15:38:30
Data file closed at 15:50:7

Filename = c:\data\01111547.bin    Start time = 15:47:27
Data file closed at 15:59:4

Filename = c:\data\01111556.bin    Start time = 15:56:24
Data file closed at 16:8:1

Filename = d:\data\01111605.bin    Start time = 16 05:21
Data file closed at 16·17.27

Filename = d.\data\01111614.bin    Start time = 16:14:17
Data file closed at 16:26:18

Filename = d:\data\01111623.bin    Start time = 16:23:14
Data file closed at 16:35:15

Filename = d:\data\01111632.bin    Start time = 16:32:11
Data file closed at 16:44:12

Filename = d \data\01111641 bin    Start time = 16:41:08
Data file closed at 16:53:9

Filename = d·\data\01111650 bin    Start time = 16:50:05
Data file closed at 17:2:5

Filename = d:\data\01111659.bin    Start time = 16:59:02
Data file closed at 17:11:3

Filename = d:\data\01111707.bin    Start time = 17:07:59
Data file closed at 17:20:0

Filename = d:\data\01111716 bin    Start time = 17·16:56
```

```
            Data file closed at 17.28:56

            Filename = d:\data\01111725 bin    Start time = 17:25:52
            Data file closed at 17:37:53

            Filename = d:\data\01111734 bin    Start time = 17:34:49
            Data file closed at 17.46:55

            Filename = d:\data\01111743 bin    Start time = 17.43:46
            Data file closed at 17 55.47

            Filename = d:\data\01111752 bin    Start time = 17:52:43
            Data file closed at 18:4:44

            Filename = d:\data\01111801.bin    Start time = 18.01:40
            Data file closed at 18:13:41

            Filename = d:\data\01111810 bin    Start time = 18 10:37
            Data file closed at 18:22 38

            Filename = e:\data\01111819 bin    Start time = 18 19:34
            Data file closed at 18 31 10

            Filename = e \data\01111828 bin    Start time = 18 28.31
            Data file closed at 18:40 7

            Filename = e:\data\01111837.bin    Start time = 18:37:27
            Data file closed at 18:49.4

            Filename = e:\data\01111846.bin    Start time = 18.46:24
            Data file closed at 18.58:1

            Filename = e \data\01111855 bin    Start time = 18:55:21
            Data file closed at 19:6 57

            Filename = e \data\01111904.bin    Start time = 19:04.18
            Data file closed at 19:15:53

Record 3    Start time = 20:0:0 1/11/98   Stop time = 20:2:0 1/11/98

            Filename = e:\data\01112000 bin    Start time = 20:00:04
            Data file closed at 20 11:45

Record 4    Start time = 21:0:0 1/11/98   Stop time = 21:2 0 1/11/98

            Filename = e:\data\01112100 bin    Start time = 21 00:04
            Data file closed at 21 11 45

Record 5    Start time = 22:0 0 1/11/98   Stop time = 22.2:0 1/11/98

            Filename = e \data\01112200.bin    Start time = 22:00:04
            Data file closed at 22 11:46
```

```
Record 6     Start time = 23:0:0 1/11/98   Stop time = 23:2:0 1/11/98

             Filename = e:\data\01112300.bin    Start time = 23:00:04
             Data file closed at 23:11:45

Record 7     Start time = 0:0:0 2/11/98    Stop time = 0:0:2 2/11/98

             Filename = e:\data\02110000.bin    Start time = 00:00:04
             Data file closed at 0:11:45

Record 8     Start time = 1:0:0 2/11/98    Stop time = 1:2:0 2/11/98

             Filename = e:\data\02110100.bin    Start time = 01:00:04
             Data file closed at 1:11:46

Record 9     Start time = 2:0:0 2/11/98    Stop time = 2:2:0 2/11/98

             Filename = e:\data\02110200.bin    Start time = 02:00:04
             Data file closed at 2:11:48

Record 10    Start time = 3:0:0 2/11/98    Stop time = 3:2:0 2/11/98

             Filename = e:\data\02110300.bin    Start time = 03:00:04
             Data file closed at 3:11:47

Record 11    Start time = 4:0:0 2/11/98    Stop time = 4:2:0 2/11/98

             Filename = e:\data\02110400.bin    Start time = 04:00:04
             Data file closed at 4:11:49

Record 12    Start time = 5:0:0 2/11/98    Stop time = 5:2:0 2/11/98

             Filename = f:\data\02110500.bin    Start time = 05:00:04
             Data file closed at 5:11:47

Record 13    Start time = 6:0:0 2/11/98    Stop time = 6:2:0 2/11/98

             Filename = f:\data\02110600.bin    Start time = 06:00:04
             Data file closed at 6:11:47

Record 14    Start time = 7:0:0 2/11/98    Stop time = 7:2:0 2/11/98

             Filename = f:\data\02110700.bin    Start time = 07:00:04
             Data file closed at 7:11:47

Record 15    Start time = 8:0:0 2/11/98    Stop time = 11:0:0 2/11/98

             Filename = f:\data\02110800.bin    Start time = 08:00:04
             Data file closed at 8:11:47

             Filename = f:\data\02110809.bin    Start time = 08:09:01
```

```
Data file closed at 8:20:37

Filename = f:\data\02110817.bin    Start time = 08:17:58
Data file closed at 8:29:34

Filename = f:\data\02110826.bin    Start time = 08:26:55
Data file closed at 8:38:31

Filename = f:\data\02110835.bin    Start time = 08:35:52
Data file closed at 8:47:27

Filename = f:\data\02110844.bin    Start time = 08:44:49
Data file closed at 8:56:25

Filename = f:\data\02110853.bin    Start time = 08:53:45
Data file closed at 9:5:22

Filename = f:\data\02110902.bin    Start time = 09:02:42
Data file closed at 9:14:18

Filename = f:\data\02110911.bin    Start time = 09:11:39
Data file closed at 9:23:16

Filename = f:\data\02110920.bin    Start time = 09:20:36
Data file closed at 9:32:11

Filename = f:\data\02110929.bin    Start time = 09:29:33
Data file closed at 9:41:8

Filename = f:\data\02110938.bin    Start time = 09:38:30
Data file closed at 9:50:5

Filename = g:\data\02110947.bin    Start time = 09:47:27
Data file closed at 9:59:2

Filename = g:\data\02110956.bin    Start time = 09:56:24
Data file closed at 10:7:58

Filename = g:\data\02111005.bin    Start time = 10:05:21
Data file closed at 10:16:55

Filename = g:\data\02111014.bin    Start time = 10:14:17
Data file closed at 10:25:52

Filename = g:\data\02111023.bin    Start time = 10:23:14
Data file closed at 10:34:50

Filename = g:\data\02111032.bin    Start time = 10:32:11
Data file closed at 10:43:46

Filename = g:\data\02111041.bin    Start time = 10:41:08
Data file closed at 10:52:41
```

```
          Filename = g:\data\02111050.bin    Start time = 10:50:05
          Data file closed at 11:1:38

          Filename = g:\data\02111059.bin    Start time = 10:59.02
          Data file closed at 11:10:35

Record - Acoustic Crash Record at 12:15:6 2/11/98

          Filename = g:\data\02111215.bin    Start time = 12:15:11
          Data file closed at 12:26:50
          Acoustic Record started at 12:26:50 on 2/11/98

          Filename = g:\data\02111224.bin    Start time = 12:24:07
          Data file closed at 12:35:39
          Acoustic Record started at 12:35:39 on 2/11/98

          Filename = g:\data\02111233.bin    Start time = 12:33:04
          Data file closed at 12:44:35
          Acoustic Record started at 12:44:35 on 2/11/98

          Filename = g:\data\02111242.bin    Start time = 12:42:01
          Data file closed at 12:53:32
          Acoustic Record started at 12:53:32 on 2/11/98

          Filename = g:\data\02111250.bin    Start time = 12:50:58
          Data file closed at 13:2:27
          Acoustic Record started at 13:2:27 on 2/11/98

          Filename = h:\data\02111259.bin    Start time = 12:59:55
          Data file closed at 13:11:56
          Acoustic Record stopped at 13:11:56 on 2/11/98
```

Ulrica HLA deployment 4 recording log

Single files 10 mins to the hour: Ambient noise measurements
NB the trials ships are not shut down and may be close to the array.
15:36 - 16.15 SRP run PD1 sequence
19:19 - 19 38 Circle of HLA by PC, range 500m, 5kts
19:54 - 20 08 Light bulbs
21:10 - 22:52 Tow run 02, 70Hz @ 154dB, 110Hz @ 150dB
23 33 - 00 50 More light bulbs

Pre-programmed recording times (NB minimum recording 128 MB ~ 8 mins).

22 20.00	2/11/98	22 26:00	2/11/98	0
23:50:00	2/11/98	23:56:00	2/11/98	0
0 50 00	3/11/98	0:56 00	3/11/98	0
1:50.00	3/11/98	1:56 00	3/11/98	0
2:50:00	3/11/98	2:56:00	3/11/98	0
3:50:00	3/11/98	3:56:00	3/11/98	0
4.50:00	3/11/98	4 56 00	3/11/98	0
5 50:00	3/11/98	5:56:00	3/11/98	0
6:50:00	3/11/98	6 56 00	3/11/98	0
9:00:00	3/11/98	18 00:00	3/11/98	2

```
Record 1     Start time = 22:20.0 2/11/98 Stop time = 22:26:0 2/11/98

             Filename = c:\data\02112220.bin    Start time = 22:20:04
             Data file closed at 22.31:42

Record 2     Start time = 23:50:0 2/11/98 Stop time = 23.56:0 2/11/98

             Filename = c:\data\02112350.bin    Start time = 23:50:04
             Data file closed at 0 1 41

Record 3     Start time = 0 50 0 3/11/98   Stop time = 0 56:0 3/11/98

             Filename = c:\data\03110050.bin    Start time = 00:50:04
             Data file closed at 1:1:42

Record 4     Start time = 1:50:0 3/11/98   Stop time = 1:56.0 3/11/98

             Filename = c \data\03110150.bin    Start time = 01.50:04
             Data file closed at 2 1:42

Record 5     Start time = 2 50 0 3/11/98   Stop time = 2 56 0 3/11/98

             Filename = c \data\03110250 bin    Start time = 02 50:04
             Data file closed at 3.1:42

Record 6     Start time = 3 50:0 3/11/98   Stop time = 3:56:0 3/11/98
```

```
            Filename = c:\data\03110350.bin    Start time = 03:50:04
            Data file closed at 4:1:42

Record 7    Start time = 4:50:0 3/11/98   Stop time = 4:56:0 3/11/98

            Filename = c:\data\03110450.bin    Start time = 04:50:04
            Data file closed at 5:1:46

Record 8    Start time = 5:50:0 3/11/98   Stop time = 5:56:0 3/11/98

            Filename = c:\data\03110550.bin    Start time = 05:50:04
            Data file closed at 6:1:42

Record 9    Start time = 6:50:0 3/11/98   Stop time = 6:56:0 3/11/98

            Filename = c:\data\03110650.bin    Start time = 06:50:04
            Data file closed at 7:1:48

Record 10   Start time = 9:0.0 3/11/98    Stop time = 18:0:0 3/11/98

            Filename = c:\data\03110900.bin    Start time = 09:00:04
            Data file closed at 9:11:50

            Filename = c:\data\03110909.bin    Start time = 09:09:01
            Data file closed at 9:20:39

            Filename = c:\data\03110917.bin    Start time = 09:17:58
            Data file closed at 9:29:36

            Filename = c:\data\03110926.bin    Start time = 09:26:55
            Data file closed at 9:38:33

            Filename = c:\data\03110935.bin    Start time = 09:35:52
            Data file closed at 9:47:29

            Filename = c:\data\03110944.bin    Start time = 09:44:49
            Data file closed at 9:56:26

            Filename = d:\data\03110953.bin    Start time = 09:53:45
            Data file closed at 10:5:52

            Filename = d:\data\03111002.bin    Start time = 10:02:42
            Data file closed at 10:14:44

            Filename = d:\data\03111011.bin    Start time = 10:11:39
            Data file closed at 10:23:40

            Filename = d:\data\03111020.bin    Start time = 10:20:36
            Data file closed at 10:32:38

            Filename = d:\data\03111029.bin    Start time = 10:29:33
            Data file closed at 10:41:34
```

```
Filename = d:\data\03111038.bin   Start time = 10.38:30
Data file closed at 10:50 31

Filename = d·\data\03111047.bin   Start time = 10:47:27
Data file closed at 10 59.28

Filename = d \data\03111056.bin   Start time = 10·56:24
Data file closed at 11.8 25

Filename = d \data\03111105 bin   Start time = 11·05:21
Data file closed at 11 17 22

Filename = d \data\03111114.bin   Start time = 11:14:17
Data file closed at 11.26 19

Filename = d \data\03111123.bin   Start time = 11:23:14
Data file closed at 11.35 15

Filename = d.\data\03111132.bin   Start time = 11:32:11
Data file closed at 11:44:13

Filename = d \data\03111141 bin   Start time = 11·41:08
Data file closed at 11 53 10

Filename = d \data\03111150.bin   Start time = 11·50:05
Data file closed at 12.2·6

Filename = d·\data\03111159.bin   Start time = 11:59:02
Data file closed at 12 11·3

Filename = e \data\03111207 bin   Start time = 12:07:59
Data file closed at 12·19 36

Filename = e \data\03111216 bin   Start time = 12·16:56
Data file closed at 12 28.35

Filename = e:\data\03111225.bin   Start time = 12:25:52
Data file closed at 12:37 30

Filename = e·\data\03111234.bin   Start time = 12:34:49
Data file closed at 12:46:27

Filename = e·\data\03111243.bin   Start time = 12:43:46
Data file closed at 12.55·23

Filename = e \data\03111252 bin   Start time = 12:52:43
Data file closed at 13 4.20

Filename = e:\data\03111301 bin   Start time = 13:01:40
Data file closed at 13:13.23
```

```
Filename = e:\data\03111310.bin    Start time = 13:10:37
Data file closed at 13:22:13

Filename = e:\data\03111319.bin    Start time = 13:19:34
Data file closed at 13:31:10

Filename = e:\data\03111328.bin    Start time = 13:28:31
Data file closed at 13:40:7

Filename = e:\data\03111337.bin    Start time = 13:37:27
Data file closed at 13:49:3

Filename = e:\data\03111346.bin    Start time = 13:46:24
Data file closed at 13:58:1

Filename = e:\data\03111355.bin    Start time = 13:55:21
Data file closed at 14:6:58

Filename = e:\data\03111404.bin    Start time = 14:04:18
Data file closed at 14:15:55

Filename = e:\data\03111413.bin    Start time = 14:13:15
Data file closed at 14:24:53

Filename = f:\data\03111422.bin    Start time = 14:22:12
Data file closed at 14:33:49

Filename = f:\data\03111431.bin    Start time = 14:31:09
Data file closed at 14:42:46

Filename = f:\data\03111440.bin    Start time = 14:40:06
Data file closed at 14:51:43

Filename = f:\data\03111449.bin    Start time = 14:49:03
Data file closed at 15:0:40

Filename = f:\data\03111457.bin    Start time = 14:57:59
Data file closed at 15:9:37

Filename = f:\data\03111506.bin    Start time = 15:06:56
Data file closed at 15:18:34

Filename = f:\data\03111515.bin    Start time = 15:15:53
Data file closed at 15:27:31

Filename = f:\data\03111524.bin    Start time = 15:24:50
Data file closed at 15:36:27

Filename = f:\data\03111533.bin    Start time = 15:33:47
Data file closed at 15:45:23

Filename = f:\data\03111542.bin    Start time = 15:42:44
```

```
Data file closed at 15.54 20

Filename = f:\data\03111551.bin    Start time = 15:51:41
Data file closed at 16 3:17

Filename = f \data\03111600.bin    Start time = 16:00:38
Data file closed at 16·12:15

Filename = f:\data\03111609.bin    Start time = 16·09:34
Data file closed at 16 21 11

Filename = f \data\03111618 bin    Start time = 16 18.31
Data file closed at 16 30.8

Filename = f \data\03111627.bin    Start time = 16:27:28
Data file closed at 16 39.5

Filename = g:\data\03111636.bin    Start time = 16:36 25
Data file closed at 16:48·1

Filename = g·\data\03111645 bin    Start time = 16:45:22
Data file closed at 16.56 58

Filename = g \data\03111654.bin    Start time = 16·54:19
Data file closed at 17·5 55

Filename = g.\data\03111703.bin    Start time = 17:03:16
Data file closed at 17.14:51

Filename = g·\data\03111712.bin    Start time = 17:12·13
Data file closed at 17.23:48

Filename = g \data\03111721.bin    Start time = 17:21:09
Data file closed at 17 32 45

Filename = g \data\03111730 bin    Start time = 17:30·06
Data file closed at 17 41.40

Filename = g \data\03111739.bin    Start time = 17:39:03
Data file closed at 17:50:36

Filename = g:\data\03111748.bin    Start time = 17:48:00
Data file closed at 17 59.33

Filename = g·\data\03111756.bin    Start time = 17:56:57
Data file closed at 18 8 30
```

ACOUSTIC RECORDINGS - (NOT COMPUTER GENERATED SO ACTUAL TIME DATA NOT AVAILABLE)

ACOUSTIC ON

```
Filename = h:\data\03111909.bin   Start time = 19:09    0

Filename = h:\data\03111918.bin Start time = 19:18     64

Filename = h:\data\03111927.bin Start time = 19:27     32

Filename = h:\data\03111936.bin Start time = 19:36      0

Filename = h:\data\03111945.bin Start time = 19:45

Filename = h:\data\03111954.bin Start time = 19:54

Filename = h:\data\03112003.bin Start time = 20:03      0

Filename = h:\data\03112012.bin Start time = 20:12

Filename = h:\data\03112021.bin Start time = 20:21

Filename = h:\data\03112030.bin Start time = 20:30      0

Filename = h:\data\03112039.bin Start time = 20:39

Filename = h:\data\03112048.bin Start time = 20:57

Filename = h:\data\03112106.bin Start time = 21:06      0

Filename = h:\data\03112114.bin Start time = 21:14

Filename = i:\data\03112123.bin Start time = 21:23

Filename = i:\data\03112132.bin Start time = 21:32      0

Filename = i:\data\03112141.bin Start time = 21:41

Filename = i:\data\03112150.bin Start time = 21:50

Filename = i:\data\03112159.bin Start time = 21:59      0

Filename = i:\data\03112208.bin Start time = 22:08

Filename = i:\data\03112217.bin Start time = 22:17

Filename = i:\data\03112226.bin Start time = 22:26      0

Filename = i:\data\03112235.bin Start time = 22:35

Filename = i:\data\03112244.bin Start time = 22:44

Filename = i:\data\03112253.bin Start time = 22:53      0

Filename = i:\data\03112302.bin Start time = 23:02
Filename = j:\data\03112311.bin Start time = 23:11
Filename = j:\data\03112320.bin Start time = 23:20        0
Filename = j:\data\03112329.bin Start time = 23:29
Filename = j:\data\03112238.bin Start time = 22:38
Filename = j:\data\03112347.bin Start time = 23:47        0
Filename = j:\data\03112356.bin Start time = 23:56
Filename = j:\data\04110004.bin Start time = 00:04
Filename = j:\data\04110013.bin Start time = 00:13        0
Filename = j:\data\04110022.bin Start time = 00:22
Filename = j:\data\04110031.bin Start time = 00:31
Filename = j:\data\04110040.bin Start time = 00:40        0
Filename = j:\data\04110049.bin Start time = 00:49
Filename = j:\data\04110058.bin Start time = 00:58
Filename = j:\data\04110107.bin Start time = 01:07        0
Filename = j:\data\04110116.bin Start time = 01:16
Filename = j:\data\04110125.bin Start time = 01:25
Filename = j:\data\04110134.bin Start time = 01:34        0
```

Ulrica HLA deployment 5 recording log

Ambient Noise HLA at Site B

```
9:30:00    5/11/98    9:36:00    5/11/98 0
11:00:00   5/11/98    14:00:00   5/11/98 0
15:00:00   5/11/98    15:24:00   5/11/98 0
16:00:00   5/11/98    16:24:00   5/11/98 0
17:00:00   5/11/98    17:24:00   5/11/98 0
18:00:00   5/11/98    18:24:00   5/11/98 0
19:00:00   5/11/98    19:24:00   5/11/98 0
20:00:00   5/11/98    20:24:00   5/11/98 0
21:00:00   5/11/98    21:24:00   5/11/98 0
22:00:00   5/11/98    22:24:00   5/11/98 0
23:00:00   5/11/98    23:24:00   5/11/98 0
0:00:00    6/11/98    0:24:00    6/11/98 0
1:00:00    6/11/98    1:24:00    6/11/98 0
2:00:00    6/11/98    2:24:00    6/11/98 0
3:00:00    6/11/98    3:24:00    6/11/98 0
4:00:00    6/11/98    4:24:00    6/11/98 0
5:00:00    6/11/98    5:24:00    6/11/98 0
6:00:00    6/11/98    6:24:00    6/11/98 0
7:00:00    6/11/98    7:24:00    6/11/98 0
8:00:00    6/11/98    8:24:00    6/11/98 0
9:00:00    6/11/98    9:24:00    6/11/98 0
10:00:00   6/11/98    10:24:00   6/11/98 0
11:00:00   6/11/98    11:24:00   6/11/98 0
12:00:00   6/11/98    12:24:00   6/11/98 0
13:00:00   6/11/98    13:24:00   6/11/98 0
14:00:00   6/11/98    14:24:00   6/11/98 0
15:00:00   6/11/98    15:24:00   6/11/98 0
16:00:00   6/11/98    16:24:00   6/11/98 0
17:00:00   6/11/98    17:24:00   6/11/98 0
18:00:00   6/11/98    18:24:00   6/11/98 0
19:00:00   6/11/98    19:24:00   6/11/98 0
20:00:00   6/11/98    20:24:00   6/11/98 0
21:00:00   6/11/98    21:24:00   6/11/98 0
22:00:00   6/11/98    22:24:00   6/11/98 0
23:00:00   6/11/98    23:24:00   6/11/98 0
0:00:00    7/11/98    0:24:00    7/11/98 0
1:00:00    7/11/98    1:24:00    7/11/98 0
2:00:00    7/11/98    2:24:00    7/11/98 0
3:00:00    7/11/98    3:24:00    7/11/98 0
4:00:00    7/11/98    4:24:00    7/11/98 0
5:00:00    7/11/98    5:24:00    7/11/98 0
6:00:00    7/11/98    6:24:00    7/11/98 2
```

```
Record 1     Start time = 9:30:0 5/11/98     Stop time = 9:36:0 5/11/98

             Filename = c:\data\05110930.bin Start time = 09:30:04
             Data file closed at 9:41:41
```

```
Record 2     Start time = 11:0:0 5/11/98     Stop time = 14:0:0 5/11/98

             Filename = c:\data\05111100.bin Start time = 11:00:04
             Data file closed at 11:11:40

             Filename = c:\data\05111109.bin Start time = 11:09:01
             Data file closed at 11:20:37

             Filename = c:\data\05111117.bin Start time = 11:17:58
             Data file closed at 11:29:34

             Filename = c:\data\05111126.bin Start time = 11:26:55
             Data file closed at 11:38:31

             Filename = c:\data\05111135.bin Start time = 11:35:52
             Data file closed at 11:47:27

             Filename = c:\data\05111144.bin Start time = 11:44:49
             Data file closed at 11:56:25

             Filename = c:\data\05111153.bin Start time = 11:53:46
             Data file closed at 12:5:21

             Filename = c:\data\05111202.bin Start time = 12:02:42
             Data file closed at 12:14:18

             Filename = c:\data\05111211.bin Start time = 12:11:39
             Data file closed at 12:23:15

             Filename = c:\data\05111220.bin Start time = 12:20:36
             Data file closed at 12:32:14

             Filename = c:\data\05111229.bin Start time = 12:29:33
             Data file closed at 12:41:10

             Filename = c:\data\05111238.bin Start time = 12:38:30
             Data file closed at 12:50:7

             Filename = c:\data\05111247.bin Start time = 12:47:27
             Data file closed at 12:59:4

             Filename = c:\data\05111256.bin Start time = 12:56:24
             Data file closed at 13:8:1

             Filename = d:\data\05111305.bin Start time = 13:05:21
             Data file closed at 13:17:27

             Filename = d:\data\05111314.bin Start time = 13:14:17
             Data file closed at 13:26:18

             Filename = d:\data\05111323.bin Start time = 13:23:14
```

```
                    Data file closed at 13:35:15

                    Filename = d:\data\05111332.bin Start time = 13:32:11
                    Data file closed at 13·44.12

                    Filename = d \data\05111341 bin Start time = 13·41:08
                    Data file closed at 13.53·10

                    Filename = d:\data\05111350.bin Start time = 13:50:05
                    Data file closed at 14:2:5

                    Filename = d:\data\05111359.bin Start time = 13:59:02
                    Data file closed at 14:11:2

Record 3            Start time = 15·0.0 5/11/98     Stop time = 15:24:0 5/11/98

                    Filename = d \data\05111500.bin Start time = 15·00:04
                    Data file closed at 15.12:11

                    Filename = d \data\05111509.bin Start time = 15:09:01
                    Data file closed at 15:21·2

                    Filename = d:\data\05111517.bin Start time = 15:17:58
                    Data file closed at 15:29:59

Record 4            Start time = 16·0·0 5/11/98     Stop time = 16:24:0 5/11/98

                    Filename = d:\data\05111600.bin Start time = 16:00:04
                    Data file closed at 16.12 11

                    Filename = d \data\05111609.bin Start time = 16:09:01
                    Data file closed at 16:21:2

          ACOUSTIC ON - Start of non-mission recordings

                    Acoustic Record started at 16:21.2 on 5/11/98
                    Filename = d:\data\05111617.bin Start time = 16:17:58
                    Data file closed at 16:29:59

                    Acoustic Record started at 16:29:59 on 5/11/98
                    Filename = d.\data\05111626.bin Start time = 16:26:55
                    Data file closed at 16:38.56

                    Acoustic Record started at 16:38:56 on 5/11/98
                    Filename = d:\data\05111635.bin Start time = 16:35:52
                    Data file closed at 16:47·58

                    Acoustic Record started at 16:47:58 on 5/11/98
                    Filename = e:\data\05111644.bin Start time = 16:44:49
                    Data file closed at 16:56·25

                    Acoustic Record started at 16:56·25 on 5/11/98
```

```
            Filename = e \data\05111653 bin Start time = 16·53 46
            Data file closed at 17.5.22

            Acoustic Record started at 17:5.22 on 5/11/98
            Filename = e.\data\05111702.bin Start time = 17:02:42
            Data file closed at 17.14:19

            Acoustic Record stopped at 17:14:19 on 5/11/98
            Filename = e \data\05111711.bin Start time = 17:11:39
            Data file closed at 17 23:16

        ACOUSTIC OFF - Start of non-mission recordings

            Filename = e \data\05111720.bin Start time = 17:20.36
            Data file closed at 17·32.12

Record 6    Start time = 18·0.0 5/11/98      Stop time = 18·24:0 5/11/98

            Filename = e:\data\05111800 bin Start time = 18.00·04
            Data file closed at 18:11 45

            Filename = e \data\05111809.bin Start time = 18:09:01
            Data file closed at 18 20 36

            Filename = e \data\05111817 bin Start time = 18·17.58
            Data file closed at 18:29 33

Record 7    Start time = 19.0.0 5/11/98      Stop time = 19:24:0 5/11/98

            Filename = e:\data\05111900 bin Start time = 19:00:04
            Data file closed at 19:11.46

            Filename = e.\data\05111909 bin Start time = 19:09 01
            Data file closed at 19 20.36

            Filename = e \data\05111917 bin Start time = 19.17·58
            Data file closed at 19 29 33

Record 8    Start time = 20:0.0 5/11/98      Stop time = 20:24:0 5/11/98

            Filename = e \data\05112000.bin Start time = 20:00:04
            Data file closed at 20 11:47

            Filename = e \data\05112009.bin Start time = 20·09:01
            Data file closed at 20:20 37

            Filename = e \data\05112017 bin Start time = 20.17 58
            Data file closed at 20 29 34

Record 9    Start time = 21.0.0 5/11/98      Stop time = 21:24:0 5/11/98

            Filename = e \data\05112100 bin Start time = 21:00:04
```

```
                 Data file closed at 21:11:49

                 Filename = f:\data\05112109.bin Start time = 21:09:01
                 Data file closed at 21.20:38

                 Filename = f:\data\05112117.bin Start time = 21.17:58
                 Data file closed at 21:29.35

Record 10        Start time = 22:0.0 5/11/98      Stop time = 22:24:0 5/11/98

                 Filename = f:\data\05112200.bin Start time = 22:00:04
                 Data file closed at 22:11:47

                 Filename = f:\data\05112209.bin Start time = 22:09:01
                 Data file closed at 22:20:37

                 Filename = f:\data\05112217.bin Start time = 22:17:58
                 Data file closed at 22.29.34

Record 11        Start time = 23:0:0 5/11/98      Stop time = 23:24:0 5/11/98

                 Filename = f:\data\05112300.bin Start time = 23:00:04
                 Data file closed at 23:11:47

                 Filename = f:\data\05112309.bin Start time = 23:09:01
                 Data file closed at 23.20:37

                 Filename = f:\data\05112317.bin Start time = 23:17:58
                 Data file closed at 23 29.34

Record 12        Start time = 0:0 0 6/11/98      Stop time = 0:24:0 6/11/98

                 Filename = f:\data\06110000.bin Start time = 00:00:04
                 Data file closed at 0:11:47

                 Filename = f:\data\06110009.bin Start time = 00:09:01
                 Data file closed at 0:20.37

                 Filename = f:\data\06110017.bin Start time = 00:17:58
                 Data file closed at 0:29:34

Record 13        Start time = 1:0:0 6/11/98      Stop time = 1:24:0 6/11/98

                 Filename = f:\data\06110100.bin Start time = 01:00:04
                 Data file closed at 1:11:48

                 Filename = f:\data\06110109.bin Start time = 01:09:01
                 Data file closed at 1:20:37

                 Filename = f:\data\06110117.bin Start time = 01:17:58
                 Data file closed at 1:29:33
```

```
Record 14     Start time = 2 0 0 6/11/98     Stop time = 2 24 0 6/11/98

              Filename = f:\data\06110200.bin Start time = 02.00·04
              Data file closed at 2.11.46

              Filename = g \data\06110209.bin Start time = 02:09:01
              Data file closed at 2·20:37

              Filename = g \data\06110217.bin Start time = 02:17:58
              Data file closed at 2 29·33

Record 15     Start time = 3 0 0 6/11/98     Stop time = 3:24·0 6/11/98

              Filename = g.\data\06110300 bin Start time = 03.00:04
              Data file closed at 3·11 46

              Filename = g·\data\06110309 bin Start time = 03:09·01
              Data file closed at 3.20 36

              Filename = g \data\06110317 bin Start time = 03·17:58
              Data file closed at 3.29 33

Record 16     Start time = 4 0 0 6/11/98     Stop time = 4 24 0 6/11/98

              Filename = g \data\06110400.bin Start time = 04·00 04
              Data file closed at 4:11·46

              Filename = g:\data\06110409.bin Start time = 04·09:01
              Data file closed at 4.20.35

              Filename = g:\data\06110417.bin Start time = 04:17.58
              Data file closed at 4:29 31

Record 17     Start time = 5 0 0 6/11/98     Stop time = 5·24.0 6/11/98

              Filename = g \data\06110500 bin Start time = 05:00 04
              Data file closed at 5 11 44

              Filename = g \data\06110509.bin Start time = 05:09 01
              Data file closed at 5 20·34

              Filename = g.\data\06110517.bin Start time = 05:17:58
              Data file closed at 5:29.30

Record 18     Start time = 6 0 0 6/11/98     Stop time = 6·24:0 6/11/98

              Filename = g \data\06110600 bin Start time = 06·00·04
              Data file closed at 6 11 42

              Filename = g \data\06110609.bin Start time = 06·09:01
              Data file closed at 6 20.32
```

```
               Filename = g:\data\06110617.bin Start time = 06:17:58
               Data file closed at 6:29:27

Record 19      Start time = 7:0:0 6/11/98      Stop time = 7:24:0 6/11/98

               Filename = h:\data\06110700.bin Start time = 07:00:04
               Data file closed at 7:12:12

               Filename = h:\data\06110709.bin Start time = 07:09:01
               Data file closed at 7:21:2

               Filename = h:\data\06110717.bin Start time = 07:17:58
               Data file closed at 7:29:59

Record 20      Start time = 8:0:0 6/11/98      Stop time = 8:24:0 6/11/98

               Filename = h:\data\06110800.bin Start time = 08:00:04
               Data file closed at 8:12:12

               Filename = h:\data\06110809.bin Start time = 08:09:01
               Data file closed at 8:21:3

               Filename = h:\data\06110817.bin Start time = 08:17:58
               Data file closed at 8:30:0

Record 21      Start time = 9:0:0 6/11/98      Stop time = 9:24:0 6/11/98

               Filename = h:\data\06110900.bin Start time = 09:00:04
               Data file closed at 9:12:13

               Filename = h:\data\06110909.bin Start time = 09:09:01
               Data file closed at 9:21:2

               Filename = h:\data\06110917.bin Start time = 09:17:58
               Data file closed at 9:29:59

Record 22      Start time = 10:0:0 6/11/98      Stop time = 10:24:0 6/11/98

               Filename = h:\data\06111000.bin Start time = 10:00:04
               Data file closed at 10:12:12

               Filename = h:\data\06111009.bin Start time = 10:09:01
               Data file closed at 10:21:2

               Filename = h:\data\06111017.bin Start time = 10:17:58
               Data file closed at 10:30:0

Record 23      Start time = 11:0:0 6/11/98      Stop time = 11:24:0 6/11/98

               Filename = h:\data\06111100.bin Start time = 11:00:04
               Data file closed at 11:12:12
```

```
                Filename = h \data\06111109 bin Start time = 11:09 01
                Data file closed at 11.21:2

                Filename = h:\data\06111117.bin Start time = 11:17.58
                Data file closed at 11:29:59

Record 24       Start time = 12:0 0 6/11/98       Stop time = 12.24:0 6/11/98

                Filename = i.\data\06111200.bin Start time = 12:00:04
                Data file closed at 12:12.14

                Filename = i \data\06111209 bin Start time = 12:09.01
                Data file closed at 12 21 3

                Filename = i:\data\06111217 bin Start time = 12:17:58
                Data file closed at 12.30:0

Record 25       Start time = 13:0 0 6/11/98       Stop time = 13.24:0 6/11/98

                Filename = i:\data\06111300 bin Start time = 13:00 04
                Data file closed at 13 12.13

                Filename = i \data\06111309 bin Start time = 13 09:01
                Data file closed at 13 21 2

                Filename = i \data\06111317.bin Start time = 13.17:58
                Data file closed at 13.29.59

Record 26       Start time = 14.0 0 6/11/98       Stop time = 14.24:0 6/11/98

                Filename = i \data\06111400.bin Start time = 14:00:04
                Data file closed at 14.12:13

                Filename = i \data\06111409 bin Start time = 14:09:01
                Data file closed at 14 21 3

                Filename = i \data\06111417.bin Start time = 14:17:58
                Data file closed at 14:30 1

Record 27       Start time = 15 0 0 6/11/98       Stop time = 15.24:0 6/11/98

                Filename = i \data\06111500.bin Start time = 15:00:04
                Data file closed at 15:12:15

                Filename = i:\data\06111509.bin Start time = 15:09:01
                Data file closed at 15.21.4

                Filename = i \data\06111517 bin Start time = 15 17 58
                Data file closed at 15 30 1

Record 28       Start time = 16:0 0 6/11/98       Stop time = 16.24:0 6/11/98
```

```
                 Filename = i:\data\06111600.bin Start time = 16:00:04
                 Data file closed at 16:12:14

                 Filename = i:\data\06111609.bin Start time = 16:09:01
                 Data file closed at 16:21:4

                 Filename = i:\data\06111617.bin Start time = 16:17:58
                 Data file closed at 16:30:1

Record 29         Start time = 17:0:0 6/11/98      Stop time = 17:24:0 6/11/98

                 Filename = j:\data\06111700.bin Start time = 17:00:04
                 Data file closed at 17:12:16

                 Filename = j:\data\06111709.bin Start time = 17:09:01
                 Data file closed at 17:21:4

                 Filename = j:\data\06111717.bin Start time = 17:17:58
                 Data file closed at 17:30:1

Record 30         Start time = 18:0:0 6/11/98      Stop time = 18:24:0 6/11/98

                 Filename = j:\data\06111800.bin Start time = 18:00:04
                 Data file closed at 18:12:14

                 Filename = j:\data\06111809.bin Start time = 18:09:01
                 Data file closed at 18:21:4

                 Filename = j:\data\06111817.bin Start time = 18:17:58
                 Data file closed at 18:30:1

Record 31         Start time = 19:0:0 6/11/98      Stop time = 19:24:0 6/11/98

                 Filename = j:\data\06111900.bin Start time = 19:00:04
                 Data file closed at 19:12:15

                 Filename = j:\data\06111909.bin Start time = 19:09:01
                 Data file closed at 19:21:4

                 Filename = j:\data\06111917.bin Start time = 19:17:58
                 Data file closed at 19:30:1

Record 32         Start time = 20:0:0 6/11/98      Stop time = 20:24:0 6/11/98

                 Filename = j:\data\06112000.bin Start time = 20:00:04
                 Data file closed at 20:12:15

                 Filename = j:\data\06112009.bin Start time = 20:09:01
                 Data file closed at 20:21:4

                 Filename = j:\data\06112017.bin Start time = 20:17:58
                 Data file closed at 20:30:1
```

Ulrica HLA deployment 7 recording log

Programmed Mission

23:25:00	5/11/98	23.26:00	5/11/98	0
10:00.00	6/11/98	22 00:00	6/11/98	0
9:00.00	7/11/98	14 00:00	7/11/98	2

```
Record 1     Start time = 23:25:0 5/11/98 Stop time = 23.26:0 5/11/98

             Filename = c \data\05112325.bin    Start time = 23:25:04
             Data file closed at 23.36:41

Record 2     Start time = 10 0:0 6/11/98   Stop time = 22:0:0 6/11/98

             Filename = c \data\06111000.bin    Start time = 10:00.04
             Data file closed at 10:11 40

             Filename = c \data\06111009 bin    Start time = 10:09.01
             Data file closed at 10.20:37

             Filename = c \data\06111017.bin    Start time = 10.17:58
             Data file closed at 10:29.34

             Filename = c \data\06111026.bin    Start time = 10:26:55
             Data file closed at 10 38 31

             Filename = c \data\06111035.bin    Start time = 10:35:52
             Data file closed at 10 47 27

             Filename = c \data\06111044.bin    Start time = 10:44:48
             Data file closed at 10.56 24

             Filename = c.\data\06111053.bin    Start time = 10:53:45
             Data file closed at 11:5:21

             Filename = c \data\06111102.bin    Start time = 11:02:42
             Data file closed at 11:14:18

             Filename = c \data\06111111.bin    Start time = 11:11:39
             Data file closed at 11.23:15

             Filename = d \data\06111120 bin    Start time = 11.20:36
             Data file closed at 11:32:42

             Filename = d:\data\06111129.bin    Start time = 11:29:33
             Data file closed at 11.41:33

             Filename = d:\data\06111138.bin    Start time = 11:38:30
             Data file closed at 11:50:30
```

```
Filename = d:\data\06111147.bin    Start time = 11:47:26
Data file closed at 11:59:27

Filename = d:\data\06111156.bin    Start time = 11:56:23
Data file closed at 12:8:24

Filename = d:\data\06111205.bin    Start time = 12:05:20
Data file closed at 12:17:21

Filename = d:\data\06111214.bin    Start time = 12:14:17
Data file closed at 12:26:17

Filename = d:\data\06111223.bin    Start time = 12:23:14
Data file closed at 12:35:15

Filename = d:\data\06111232.bin    Start time = 12:32:11
Data file closed at 12:44:11

Filename = d:\data\06111241.bin    Start time = 12:41:08
Data file closed at 12:53:8

Filename = d:\data\06111250.bin    Start time = 12:50:04
Data file closed at 13:2:5

Filename = d:\data\06111259.bin    Start time = 12:59:01
Data file closed at 13:11:2

Filename = d:\data\06111307.bin    Start time = 13:07:58
Data file closed at 13:19:58

Filename = d:\data\06111316.bin    Start time = 13:16:55
Data file closed at 13:28:56

Filename = d:\data\06111325.bin    Start time = 13:25:52
Data file closed at 13:37:53

Filename = e:\data\06111334.bin    Start time = 13:34:49
Data file closed at 13:46:30

Filename = e:\data\06111343.bin    Start time = 13:43:45
Data file closed at 13:55:22

Filename = e:\data\06111352.bin    Start time = 13:52:42
Data file closed at 14:4:18

Filename = e:\data\06111401.bin    Start time = 14:01:39
Data file closed at 14:13:15

Filename = e:\data\06111410.bin    Start time = 14:10:36
Data file closed at 14:22:14

Filename = e:\data\06111419.bin    Start time = 14:19:33
```

```
Data file closed at 14 31:9

Filename = e:\data\06111428.bin    Start time = 14:28:30
Data file closed at 14.40:6

Filename = e \data\06111437.bin    Start time = 14:37.27
Data file closed at 14.49 3

Filename = e \data\06111446 bin    Start time = 14:46:23
Data file closed at 14 57:59

Filename = e:\data\06111455.bin    Start time = 14.55:20
Data file closed at 15.6:56

Filename = e.\data\06111504.bin    Start time = 15:04:17
Data file closed at 15:15:53

Filename = e:\data\06111513.bin    Start time = 15.13:14
Data file closed at 15 24:50

Filename = e \data\06111522.bin    Start time = 15:22:11
Data file closed at 15:33:48

Filename = e.\data\06111531.bin    Start time = 15:31:08
Data file closed at 15 42:44

Filename = e \data\06111540.bin    Start time = 15:40:05
Data file closed at 15 51:42

Filename = f \data\06111549 bin    Start time = 15.49:01
Data file closed at 16 0 40

Filename = f \data\06111557.bin    Start time = 15:57:58
Data file closed at 16 9.36

Filename = f \data\06111606.bin    Start time = 16:06:55
Data file closed at 16:18:33

Filename = f:\data\06111615 bin    Start time = 16:15:52
Data file closed at 16:27:31

Filename = f \data\06111624.bin    Start time = 16.24.49
Data file closed at 16:36 28

Filename = f \data\06111633 bin    Start time = 16 33:46
Data file closed at 16 45.24

Filename = f:\data\06111642 bin    Start time = 16:42:42
Data file closed at 16.54 21

Filename = f \data\06111651.bin    Start time = 16:51:39
Data file closed at 17 3:17
```

```
Filename = f:\data\06111700.bin    Start time = 17:00:36
Data file closed at 17:12:14

Filename = f:\data\06111709.bin    Start time = 17:09:33
Data file closed at 17:21:10

Filename = f:\data\06111718.bin    Start time = 17:18:30
Data file closed at 17:30:7

Filename = f:\data\06111727.bin    Start time = 17:27:27
Data file closed at 17:39:4

Filename = f:\data\06111736.bin    Start time = 17:36:24
Data file closed at 17:48:0

Filename = f:\data\06111745.bin    Start time = 17:45:20
Data file closed at 17:56:56

Filename = f:\data\06111754.bin    Start time = 17:54:17
Data file closed at 18:5:53

Filename = g:\data\06111803.bin    Start time = 18:03:14
Data file closed at 18:14:49

Filename = g:\data\06111812.bin    Start time = 18:12:11
Data file closed at 18:23:46

Filename = g:\data\06111821.bin    Start time = 18:21:08
Data file closed at 18:32:43

Filename = g:\data\06111830.bin    Start time = 18:30:05
Data file closed at 18:41:40

Filename = g:\data\06111839.bin    Start time = 18:39:02
Data file closed at 18:50:37

Filename = g:\data\06111847.bin    Start time = 18:47:58
Data file closed at 18:59:34

Filename = g:\data\06111856.bin    Start time = 18:56:55
Data file closed at 19:8:28

Filename = g:\data\06111905.bin    Start time = 19:05:52
Data file closed at 19:17:25

Filename = g:\data\06111914.bin    Start time = 19:14:49
Data file closed at 19:26:22

Filename = g:\data\06111923.bin    Start time = 19:23:46
Data file closed at 19:35:19
```

```
Filename = g:\data\06111932.bin    Start time = 19:32:43
Data file closed at 19:44:14

Filename = g:\data\06111941.bin    Start time = 19:41:39
Data file closed at 19:53:10

Filename = g:\data\06111950.bin    Start time = 19:50:36
Data file closed at 20:2:6

Filename = g:\data\06111959.bin    Start time = 19:59:33
Data file closed at 20:11:2

Filename = h:\data\06112008.bin    Start time = 20:08:30
Data file closed at 20:20:37

Filename = h:\data\06112017.bin    Start time = 20:17:27
Data file closed at 20:29:28

Filename = h:\data\06112026.bin    Start time = 20:26:24
Data file closed at 20:38:25

Filename = h:\data\06112035.bin    Start time = 20:35:21
Data file closed at 20:47:22

Filename = h:\data\06112044.bin    Start time = 20:44:17
Data file closed at 20:56:18

Filename = h:\data\06112053.bin    Start time = 20:53:14
Data file closed at 21:5:16

Filename = h:\data\06112102.bin    Start time = 21:02:11
Data file closed at 21:14:12

Filename = h:\data\06112111.bin    Start time = 21:11:08
Data file closed at 21:23:9

Filename = h:\data\06112120.bin    Start time = 21:20:05
Data file closed at 21:32:6

Filename = h:\data\06112129.bin    Start time = 21:29:02
Data file closed at 21:41:3

Filename = h:\data\06112137.bin    Start time = 21:37:59
Data file closed at 21:50:0

Filename = h:\data\06112146.bin    Start time = 21:46:55
Data file closed at 21:59:1

Filename = h:\data\06112155.bin    Start time = 21:55:52
Data file closed at 22:7:53
```

```
Record 3    Start time = 9:00:0 7/11/98   Stop time = 14:00:0 7/11/98

            Filename = h:\data\07110900.bin   Start time = 09:00

            Filename = h:\data\07110909.bin   Start time = 09:09

            Filename = i:\data\07110917.bin   Start time = 09:17

            Filename = i:\data\07110926.bin   Start time = 09:26

            Filename = i:\data\07110935.bin   Start time = 09:35

            Filename = i:\data\07110944.bin   Start time = 09:44

            Filename = i:\data\07110953.bin   Start time = 09:53

            Filename = i:\data\07111002.bin   Start time = 10:02

            Filename = i:\data\07111011.bin   Start time = 10:11

            Filename = i:\data\07111020.bin   Start time = 10:20

            Filename = i:\data\07111029.bin   Start time = 10:29

            Filename = i:\data\07111038.bin   Start time = 10:38

            Filename = i:\data\07111047.bin   Start time = 10:47

            Filename = i:\data\07111056.bin   Start time = 10:56

            Filename = i:\data\07111105.bin   Start time = 11:05

            Filename = i:\data\07111114.bin   Start time = 11:14

            Filename = i:\data\07111123.bin   Start time = 11:23

            Filename = j:\data\07111132.bin   Start time = 11:32

            Filename = j:\data\07111141.bin   Start time = 11:41

            Filename = j:\data\07111150.bin   Start time = 11:50

            Filename = j:\data\07111159.bin   Start time = 11:59

            Filename = j:\data\07111207.bin   Start time = 12:07

            Filename = j:\data\07111216.bin   Start time = 12:16

            Filename = j:\data\07111225.bin   Start time = 12:25

            Filename = j:\data\07111234.bin   Start time = 12:34
Filename = j:\data\07111243.bin    Start time = 12:43

Filename = j:\data\07111252.bin    Start time = 12:52

Filename = j:\data\07111301.bin    Start time = 13:01

Filename = j:\data\07111310.bin    Start time = 13:10

Filename = j:\data\07111319.bin    Start time = 13:19

Filename = j:\data\07111328.bin    Start time = 13:28
```

Ulrica HLA deployment 9 recording log

```
Node 3, Array 4, HLA Configuration

9:59:00     8/11/98     10:00:00    8/11/98     0
11:00:00    8/11/98     20:00:00    8/11/98     2


Record 1    Start time = 9:59:0 8/11/98   Stop time = 10:0:0 8/11/98

            Filename = c:\data\08110959.bin    Start time = 09:59:04
            Data file closed at 10:10:42

Record 2    Start time = 11:0:0 8/11/98   Stop time = 20:0:0 8/11/98

            Filename = c:\data\08111100.bin    Start time = 11:00:04
            Data file closed at 11:11:41

            Filename = c:\data\08111109.bin    Start time = 11:09:01
            Data file closed at 11:20:38

            Filename = c:\data\08111117.bin    Start time = 11:17:58
            Data file closed at 11:29:35

            Filename = c:\data\08111126.bin    Start time = 11:26:55
            Data file closed at 11:38:32

            Filename = c:\data\08111135.bin    Start time = 11:35:52
            Data file closed at 11:47:30

            Filename = c:\data\08111144.bin    Start time = 11:44:49
            Data file closed at 11:56:30

            Filename = c:\data\08111153.bin    Start time = 11:53:45
            Data file closed at 12:5:23

            Filename = c:\data\08111202.bin    Start time = 12:02:42
            Data file closed at 12:14:26

            Filename = c:\data\08111211.bin    Start time = 12:11:39
            Data file closed at 12:23:25

            Filename = c:\data\08111220.bin    Start time = 12:20:36
            Data file closed at 12:32:14

            Filename = c:\data\08111229.bin    Start time = 12:29:33
            Data file closed at 12:41:10

            Filename = c:\data\08111238.bin    Start time = 12:38:30
            Data file closed at 12:50:8

            Filename = c:\data\08111247.bin    Start time = 12:47:27
```

```
Data file closed at 12.59:3

Filename = c:\data\08111256.bin    Start time = 12:56:23
Data file closed at 13:8:2

Filename = d \data\08111305.bin    Start time = 13 05.20
Data file closed at 13 17 27

Filename = d \data\08111314 bin    Start time = 13:14 17
Data file closed at 13:26.18

Filename = d.\data\08111323 bin    Start time = 13·23:14
Data file closed at 13.35:15

Filename = d.\data\08111332.bin    Start time = 13:32 11
Data file closed at 13 44 12

Filename = d \data\08111341 bin    Start time = 13:41.08
Data file closed at 13 53 9

Filename = d \data\08111350 bin    Start time = 13·50·05
Data file closed at 14:2 6

Filename = d \data\08111359.bin    Start time = 13:59:01
Data file closed at 14:11:3

Filename = d \data\08111407.bin    Start time = 14:07:58
Data file closed at 14:20.0

Filename = d \data\08111416 bin    Start time = 14·16·55
Data file closed at 14 28 56

Filename = d \data\08111425 bin    Start time = 14.25 52
Data file closed at 14 37 53

Filename = d \data\08111434.bin    Start time = 14:34:49
Data file closed at 14 46:55

Filename = d·\data\08111443.bin    Start time = 14:43.46
Data file closed at 14:55 47

Filename = d \data\08111452.bin    Start time = 14:52.43
Data file closed at 15 4 44

Filename = d \data\08111501 bin    Start time = 15 01:39
Data file closed at 15·13:41

Filename = d.\data\08111510.bin    Start time = 15:10:36
Data file closed at 15.22·37

Filename = e \data\08111519 bin    Start time = 15:19:33
Data file closed at 15 31·10
```

```
Filename = e:\data\08111528.bin    Start time = 15:28.30
Data file closed at 15:40:9

Filename = e.\data\08111537.bin    Start time = 15:37:27
Data file closed at 15:49:4

Filename = e:\data\08111546.bin    Start time = 15:46:24
Data file closed at 15:58:1

Filename = e:\data\08111555.bin    Start time = 15.55:21
Data file closed at 16:6:58

Filename = e:\data\08111604.bin    Start time = 16:04:17
Data file closed at 16:15:53

Filename = e.\data\08111613.bin    Start time = 16:13:14
Data file closed at 16:24.58

Filename = e:\data\08111622.bin    Start time = 16:22:11
Data file closed at 16:33:48

Filename = e:\data\08111631.bin    Start time = 16:31:08
Data file closed at 16:42:44

Filename = e:\data\08111640.bin    Start time = 16:40:05
Data file closed at 16:51:41

Filename = e:\data\08111649.bin    Start time = 16:49:02
Data file closed at 17:0:38

Filename = e:\data\08111657.bin    Start time = 16:57:59
Data file closed at 17:9:36

Filename = e:\data\08111706.bin    Start time = 17:06:55
Data file closed at 17.18:32

Filename = e:\data\08111715.bin    Start time = 17:15:52
Data file closed at 17:27:31

Filename = e:\data\08111724.bin    Start time = 17:24:49
Data file closed at 17:36:26

Filename = f:\data\08111733.bin    Start time = 17:33:46
Data file closed at 17:45:23

Filename = f.\data\08111742.bin    Start time = 17:42:43
Data file closed at 17:54:20

Filename = f:\data\08111751.bin    Start time = 17.51:40
Data file closed at 18.3:17
```

p4

```
                    Filename = f \data\08111800.bin    Start time = 18:00:37
                    Data file closed at 18:12.14

                    Filename = f \data\08111809.bin    Start time = 18:09.33
                    Data file closed at 18.21 11

                    Filename = f \data\08111818 bin    Start time = 18:18 30
                    Data file closed at 18:30 8

                    Filename = f \data\08111827 bin    Start time = 18 27:27
                    Data file closed at 18:39:5

                    Filename = f \data\08111836.bin    Start time = 18:36:24
                    Data file closed at 18 48:1

                    Filename = f \data\08111845.bin    Start time = 18:45:21
                    Data file closed at 18:56 57

                    Filename = f \data\08111854 bin    Start time = 18.54 18
                    Data file closed at 19 5 54

                    Filename = f \data\08111903 bin    Start time = 19 03:15
                    Data file closed at 19:14:51

                    Filename = f \data\08111912.bin    Start time = 19:12:12
                    Data file closed at 19:23:49

                    Filename = f \data\08111921.bin    Start time = 19:21:08
                    Data file closed at 19 32.45

                    Filename = f \data\08111930 bin    Start time = 19 30:05
                    Data file closed at 19 41 42

                    Filename = f \data\08111939.bin    Start time = 19:39:02
                    Data file closed at 19.50 38

                    Filename = g \data\08111947.bin    Start time = 19:47:59
                    Data file closed at 19 59:35

                    Filename = g \data\08111956.bin    Start time = 19:56:56
                    Data file closed at 20.8 32

Record - Acoustic Crash Record at 21:36 19 8/11/98

                    Filename = g \data\08112136 bin    Start time = 21:36:23
                    Data file closed at 21:48:6
                    Acoustic Record started at 21.48:6 on 8/11/98

                    Filename = g \data\08112145.bin    Start time = 21:45:20
                    Data file closed at 21:56:56
                    Acoustic Record started at 21:56:56 on 8/11/98
```

```
Filename = g:\data\08112154.bin   Start time = 21:54.17
Data file closed at 22:5.52
Acoustic Record started at 22.5:52 on 8/11/98

Filename = g:\data\08112203.bin   Start time = 22:03:14
Data file closed at 22:14:49
Acoustic Record started at 22:14:49 on 8/11/98

Filename = g:\data\08112212.bin   Start time = 22:12:11
Data file closed at 22:23:44
Acoustic Record started at 22:23:44 on 8/11/98

Filename = g:\data\08112221.bin   Start time = 22:21:08
Data file closed at 22:32.41
Acoustic Record started at 22:32:41 on 8/11/98

Filename = g:\data\08112230.bin   Start time = 22:30:04
Data file closed at 22:41:38
Acoustic Record started at 22:41:38 on 8/11/98

Filename = g:\data\08112239.bin   Start time = 22:39:01
Data file closed at 22:50:35
Acoustic Record started at 22:50:35 on 8/11/98

Filename = g:\data\08112247.bin   Start time = 22:47:58
Data file closed at 22:59.30
Acoustic Record started at 22:59:30 on 8/11/98

Filename = g:\data\08112256.bin   Start time = 22:56:55
Data file closed at 23:8:26
Acoustic Record started at 23:8:26 on 8/11/98

Filename = g:\data\08112305.bin   Start time = 23:05:52
Data file closed at 23:17:23
Acoustic Record stopped at 23:17:23 on 8/11/98
```

11.5 ULRICA VLAs

Ulrica VLA deployment 3 recording log

Single files 10 mins to the hour Ambient noise measurements.
NB the trials ships are not shut down and may be close to the array.
15 36 - 16.15 SRP run PD1 sequence
19:54 - 20:08 Light bulbs
21:10 - 22:52 Tow run 02, 70Hz @ 154dB, 110Hz @ 150dB
23·33 - 00:50 More light bulbs

Pre-programmed recording times (NB minimum recording 128 MB ~ 8 mins):

18:18.00	2/11/98	18 20 00	11/98	0
18:50:00	2/11/98	18 56 00	2/11/98	0
19:50.00	2/11/98	19 56 00	2/11/98	0
20 50:00	2/11/98	20 56 00	2/11/98	0
21·50·00	2/11/98	21 56 00	2/11/98	0
22 50:00	2/11/98	22 56 00	2/11/98	0
23·50:00	2/11/98	23 56 00	2/11/98	0
0 50:00	3/11/98	0 56 00	3/11/98	0
1:50.00	3/11/98	1 56 00	3/11/98	0
2.50·00	3/11/98	2 56 00	3/11/98	0
3 50·00	3/11/98	3 56 00	3/11/98	0
4.50:00	3/11/98	4 56 00	3/11/98	0
5:50·00	3/11/98	5 56 00	3/11/98	0
6.50:00	3/11/98	6 56 00	3/11/98	0
9.00:00	3/11/98	18 00 00	3/11/98	2

Record 1 Start time = 18 18 0 2/11/98 Stop time = 18:20:0 2/11/98

Filename = c \data\02111818 bin Start time = 18.18:04
Data file closed at 18 29 39

Record 2 Start time = 18 50 0 2/11/98 Stop time = 18·56.0 2/11/98

Filename = c \data\02111850 bin Start time = 18.50:04
Data file closed at 19 1 39

Record 3 Start time = 19·50·0 2/11/98 Stop time = 19:56·0 2/11/98

Filename = c \data\02111950 bin Start time = 19:50:04
Data file closed at 20 1 39

Record 4 Start time = 20 50 0 2/11/98 Stop time = 20 56:0 2/11/98

Filename = c \data\02112050.bin Start time = 20:50:04
Data file closed at 21:1 40

Record 5 Start time = 21:50:0 2/11/98 Stop time = 21:56:0 2/11/98

Filename = c:\data\02112150.bin Start time = 21:50:04
Data file closed at 22:1:40

Record 6 Start time = 22:50:0 2/11/98 Stop time = 22:56:0 2/11/98

Filename = c:\data\02112250.bin Start time = 22:50:04
Data file closed at 23:1:41

Record 7 Start time = 23:50:0 2/11/98 Stop time = 23:56:0 2/11/98

Filename = c:\data\02112350.bin Start time = 23:50:04
Data file closed at 0:1:41

Record 8 Start time = 0:50:0 3/11/98 Stop time = 0:56:0 3/11/98

Filename = c:\data\03110050.bin Start time = 00:50:04
Data file closed at 1:1:41

Record 9 Start time = 1:50:0 3/11/98 Stop time = 1:56:0 3/11/98

Filename = c:\data\03110150.bin Start time = 01:50:04
Data file closed at 2:1:41

Record 10 Start time = 2:50:0 3/11/98 Stop time = 2:56:0 3/11/98

Filename = c:\data\03110250.bin Start time = 02:50:04
Data file closed at 3:1:41

Record 11 Start time = 3:50:0 3/11/98 Stop time = 3:56:0 3/11/98

Filename = c:\data\03110350.bin Start time = 03:50:04
Data file closed at 4:1:41

Record 12 Start time = 4:50:0 3/11/98 Stop time = 4:56:0 3/11/98

Filename = c:\data\03110450.bin Start time = 04:50:04
Data file closed at 5:1:41

Record 13 Start time = 5:50:0 3/11/98 Stop time = 5:56:0 3/11/98

Filename = c:\data\03110550.bin Start time = 05:50:04
Data file closed at 6:1:41

Record 14 Start time = 6:50:0 3/11/98 Stop time = 6:56:0 3/11/98

Filename = c:\data\03110650.bin Start time = 06:50:04
Data file closed at 7:1:41

Record 15 Start time = 9:0:0 3/11/98 Stop time = 18:0:0 3/11/98

```
Filename = c \data\03110900.bin    Start time = 09:00:04
Data file closed at 9.11·41

Filename = d \data\03110909.bin    Start time = 09:09:01
Data file closed at 9 21.8

Filename = d \data\03110917 bin    Start time = 09:17·58
Data file closed at 9 29.58

Filename = d·\data\03110926.bin    Start time = 09:26:55
Data file closed at 9·38:55

Filename = d \data\03110935 bin    Start time = 09:35:52
Data file closed at 9.47.53

Filename = d \data\03110944 bin    Start time = 09:44:49
Data file closed at 9.56 53

Filename = d \data\03110953 bin    Start time = 09·53 45
Data file closed at 10 5.46

Filename = d.\data\03111002.bin    Start time = 10:02:42
Data file closed at 10:14 43

Filename = d \data\03111011.bin    Start time = 10:11·39
Data file closed at 10:23:40

Filename = d \data\03111020 bin    Start time = 10:20:36
Data file closed at 10 32:37

Filename = d \data\03111029.bin    Start time = 10.29:33
Data file closed at 10 41 34

Filename = d \data\03111038.bin    Start time = 10:38·30
Data file closed at 10·50·31

Filename = d \data\03111047 bin    Start time = 10:47:27
Data file closed at 10·59.27

Filename = d \data\03111056.bin    Start time = 10·56 23
Data file closed at 11:8:24

Filename = d \data\03111105 bin    Start time = 11 05·20
Data file closed at 11 17 21

Filename = d \data\03111114.bin    Start time = 11.14:17
Data file closed at 11.26:18

Filename = e \data\03111123 bin    Start time = 11:23:14
Data file closed at 11·34·51

Filename = e \data\03111132.bin    Start time = 11:32:11
```

```
Data file closed at 11:43:48

Filename = e:\data\03111141.bin    Start time = 11:41:08
Data file closed at 11:52:44

Filename = e:\data\03111150.bin    Start time = 11:50:05
Data file closed at 12:1:42

Filename = e:\data\03111159.bin    Start time = 11:59:02
Data file closed at 12:10:38

Filename = e:\data\03111207.bin    Start time = 12:07:58
Data file closed at 12:19:33

Filename = e:\data\03111216.bin    Start time = 12:16:55
Data file closed at 12:28:31

Filename = e:\data\03111225.bin    Start time = 12:25:52
Data file closed at 12:37:27

Filename = e:\data\03111234.bin    Start time = 12:34:49
Data file closed at 12:46:24

Filename = e:\data\03111243.bin    Start time = 12:43:46
Data file closed at 12:55:20

Filename = e:\data\03111252.bin    Start time = 12:52:43
Data file closed at 13.4:18

Filename = e:\data\03111301.bin    Start time = 13:01:40
Data file closed at 13:13:15

Filename = e:\data\03111310.bin    Start time = 13:10:37
Data file closed at 13:22:12

Filename = e:\data\03111319.bin    Start time = 13:19:33
Data file closed at 13:31:9

Filename = e:\data\03111328.bin    Start time = 13:28:30
Data file closed at 13:40:6

Filename = f:\data\03111337.bin    Start time = 13:37:27
Data file closed at 13:49:4

Filename = f:\data\03111346.bin    Start time = 13:46:24
Data file closed at 13:58:0

Filename = f:\data\03111355.bin    Start time = 13:55:21
Data file closed at 14.6.58

Filename = f:\data\03111404.bin    Start time = 14:04:18
Data file closed at 14.15:54
```

```
Filename = f \data\03111413 bin     Start time = 14.13:15
Data file closed at 14:24:51

Filename = f:\data\03111422.bin     Start time = 14:22.11
Data file closed at 14 33 49

Filename = f \data\03111431.bin     Start time = 14:31.08
Data file closed at 14 42.45

Filename = f \data\03111440 bin     Start time = 14:40:05
Data file closed at 14:51:42

Filename = f:\data\03111449.bin     Start time = 14:49:02
Data file closed at 15 0:37

Filename = f \data\03111457 bin     Start time = 14.57:59
Data file closed at 15 9 35

Filename = f \data\03111506 bin     Start time = 15 06 56
Data file closed at 15 18.31

Filename = f:\data\03111515 bin     Start time = 15.15:53
Data file closed at 15:27:28

Filename = f:\data\03111524.bin     Start time = 15:24:49
Data file closed at 15:36:24

Filename = f \data\03111533.bin     Start time = 15:33:46
Data file closed at 15 45 22

Filename = f \data\03111542.bin     Start time = 15:42:43
Data file closed at 15.54 18

Filename = g \data\03111551.bin     Start time = 15:51:40
Data file closed at 16 3:15

Filename = g:\data\03111600 bin     Start time = 16:00:37
Data file closed at 16.12 12

Filename = g \data\03111609.bin     Start time = 16:09:34
Data file closed at 16 21.9

Filename = g \data\03111618 bin     Start time = 16 18:31
Data file closed at 16 30.6

Filename = g \data\03111627.bin     Start time = 16:27:28
Data file closed at 16:39 3

Filename = g.\data\03111636.bin     Start time = 16:36:24
Data file closed at 16 48.0
```

```
Filename = g:\data\03111645.bin    Start time = 16:45:21
Data file closed at 16:56:55

Filename = g:\data\03111654.bin    Start time = 16:54:18
Data file closed at 17:5:51

Filename = g:\data\03111703.bin    Start time = 17:03:15
Data file closed at 17:14:48

Filename = g:\data\03111712.bin    Start time = 17:12:12
Data file closed at 17:23:45

Filename = g:\data\03111721.bin    Start time = 17:21:09
Data file closed at 17:32:41

Filename = g:\data\03111730.bin    Start time = 17:30:06
Data file closed at 17:41.36

Filename = g:\data\03111739.bin    Start time = 17:39:02
Data file closed at 17:50:33

Filename = g:\data\03111747.bin    Start time = 17:47:59
Data file closed at 17:59.29

Filename = h:\data\03111756.bin    Start time = 17:56:56
Data file closed at 18:9:4
```

ACOUSTIC RECORDINGS - NOT COMPUTER GENERATED

ACOUSTIC ON

```
Filename = h:\data\03111833.bin Start time = 18:33

Filename = h:\data\03111842.bin Start time = 18:42

Filename = h:\data\03111851.bin Start time = 18:51

Filename = h:\data\03111900.bin Start time = 19:00

Filename = h:\data\03111909.bin Start time = 19:09

Filename = h:\data\03111918.bin Start time = 19:18

Filename = h:\data\03111927.bin Start time = 19:27

Filename = h:\data\03111936.bin Start time = 19:36

Filename = h:\data\03111945.bin Start time = 19:45

Filename = h:\data\03111954.bin Start time = 19.54

Filename = h:\data\03112003.bin Start time = 20:03
Filename = h:\data\03112012.bin Start time = 20:12

Filename = h:\data\03112021.bin Start time = 20:21

Filename = h:\data\03112030.bin Start time = 20:30

Filename = i:\data\03112039.bin Start time = 20:39

Filename = i:\data\03112048.bin Start time = 20:48

Filename = i:\data\03112057.bin Start time = 20:57

Filename = i:\data\03112106.bin Start time = 21:06

Filename = i:\data\03112114.bin Start time = 21:14

Filename = i:\data\03112123.bin Start time = 21:23

Filename = i:\data\03112132.bin Start time = 21:32

Filename = i:\data\03112141.bin Start time = 21:41

Filename = i:\data\03112150.bin Start time = 21:50

Filename = i:\data\03112159.bin Start time = 21:59

Filename = i:\data\03112208.bin Start time = 22:08

Filename = i:\data\03112217.bin Start time = 22:17

Filename = i:\data\03112226.bin Start time = 22:26

Filename = i:\data\03112235.bin Start time = 22:35

Filename = i:\data\03112244.bin Start time = 22:44

Filename = j:\data\03112253.bin Start time = 22:53

Filename = j:\data\03112302.bin Start time = 23:02

Filename = j:\data\03112311.bin Start time = 23:11

Filename = j:\data\03112320.bin Start time = 23:20

Filename = j:\data\03112329.bin Start time = 23:29

Filename = j:\data\03112338.bin Start time = 23:38

Filename = j:\data\03112347.bin Start time = 23:47

Filename = j:\data\03112356.bin Start time = 23:56
```

```
          Filename = j:\data\04110004.bin Start time = 00:04

          Filename = j:\data\04110013.bin Start time = 00:13

          Filename = j:\data\04110022.bin Start time = 00:22

          Filename = j:\data\04110031.bin Start time = 00:31

          Filename = j:\data\04110040.bin Start time = 00:40

          Filename = j:\data\04110049.bin Start time = 00:49

HARD DISK DRIVES FULL
```

Ulrica VLA deployment 6 recording log

VLA Array 4

19:30:00	5/11/98	19:36:00	5/11/98	0
10:00:00	6/11/98	22 00.00	6/11/98	0
9.00:00	7/11/98	14 00:00	7/11/98	2

```
Record 1    Start time = 19:30:0 5/11/98 Stop time = 19:36:0 5/11/98

            Filename = c:\data\05111930.bin    Start time = 19:30:04
            Data file closed at 19:41:26

Record 2    Start time = 10:0.0 6/11/98   Stop time = 22:0:0 6/11/98

            Filename = c:\data\06111000.bin    Start time = 10:00:04
            Data file closed at 10:11:26

            Filename = c:\data\06111009.bin    Start time = 10:09:01
            Data file closed at 10:20:23

            Filename = c:\data\06111017.bin    Start time = 10:17:58
            Data file closed at 10:29:20

            Filename = c:\data\06111026.bin    Start time = 10:26:55
            Data file closed at 10:38:17

            Filename = c:\data\06111035.bin    Start time = 10:35:52
            Data file closed at 10:47:14

            Filename = c:\data\06111044.bin    Start time = 10:44:49
            Data file closed at 10:56:11

            Filename = c:\data\06111053.bin    Start time = 10:53:45
            Data file closed at 11:5:7

            Filename = c:\data\06111102.bin    Start time = 11:02:42
            Data file closed at 11:14:4

            Filename = c:\data\06111111.bin    Start time = 11:11:39
            Data file closed at 11:23:1

            Filename = c:\data\06111120.bin    Start time = 11:20.36
            Data file closed at 11:31:58

            Filename = c:\data\06111129.bin    Start time = 11:29:33
            Data file closed at 11.40:55

            Filename = c:\data\06111138.bin    Start time = 11:38:30
            Data file closed at 11:49:52
```

```
Filename = c:\data\06111147.bin   Start time = 11:47:27
Data file closed at 11:58:49

Filename = c:\data\06111156.bin   Start time = 11:56:24
Data file closed at 12:7:46

Filename = d:\data\06111205.bin   Start time = 12:05:20
Data file closed at 12:17:2

Filename = d:\data\06111214.bin   Start time = 12:14:17
Data file closed at 12:25:56

Filename = d:\data\06111223.bin   Start time = 12:23:14
Data file closed at 12:34:53

Filename = d:\data\06111232.bin   Start time = 12:32:11
Data file closed at 12:43:49

Filename = d:\data\06111241.bin   Start time = 12:41:08
Data file closed at 12:52:46

Filename = d:\data\06111250.bin   Start time = 12:50:05
Data file closed at 13:1:43

Filename = d:\data\06111259.bin   Start time = 12:59:02
Data file closed at 13:10:40

Filename = d:\data\06111307.bin   Start time = 13:07:59
Data file closed at 13:19:37

Filename = d:\data\06111316.bin   Start time = 13:16:55
Data file closed at 13:28:34

Filename = d:\data\06111325.bin   Start time = 13:25:52
Data file closed at 13:37:30

Filename = d:\data\06111334.bin   Start time = 13:34:49
Data file closed at 13:46:31

Filename = d:\data\06111343.bin   Start time = 13:43:46
Data file closed at 13:55:24

Filename = d:\data\06111352.bin   Start time = 13:52:43
Data file closed at 14:4:21

Filename = d:\data\06111401.bin   Start time = 14:01:40
Data file closed at 14:13:18

Filename = d:\data\06111410.bin   Start time = 14:10:37
Data file closed at 14:22:15

Filename = e:\data\06111419.bin   Start time = 14:19:34
```

```
Data file closed at 14.30:56

Filename = e:\data\06111428.bin   Start time = 14:28:30
Data file closed at 14:39:53

Filename = e:\data\06111437.bin   Start time = 14:37:27
Data file closed at 14 48 50

Filename = e \data\06111446 bin   Start time = 14 46 24
Data file closed at 14 57:47

Filename = e:\data\06111455.bin   Start time = 14:55:21
Data file closed at 15:6.43

Filename = e \data\06111504 bin   Start time = 15:04.18
Data file closed at 15:15 40

Filename = e \data\06111513 bin   Start time = 15:13:15
Data file closed at 15 24 37

Filename = e \data\06111522 bin   Start time = 15 22:12
Data file closed at 15.33 34

Filename = e \data\06111531 bin   Start time = 15:31:09
Data file closed at 15.42:31

Filename = e \data\06111540.bin   Start time = 15:40:05
Data file closed at 15 51:28

Filename = e \data\06111549 bin   Start time = 15:49.02
Data file closed at 16 0 25

Filename = e \data\06111557.bin   Start time = 15 57:59
Data file closed at 16 9 22

Filename = e \data\06111606.bin   Start time = 16:06:56
Data file closed at 16:18:19

Filename = e \data\06111615.bin   Start time = 16:15:53
Data file closed at 16.27 16

Filename = e \data\06111624 bin   Start time = 16:24:50
Data file closed at 16 36.13

Filename = f \data\06111633.bin   Start time = 16 33:47
Data file closed at 16 45 10

Filename = f \data\06111642.bin   Start time = 16:42:44
Data file closed at 16.54:6

Filename = f \data\06111651 bin   Start time = 16:51.40
Data file closed at 17 3 3
```

```
Filename = f \data\06111700.bin    Start time = 17:00·37
Data file closed at 17 12:0

Filename = f.\data\06111709.bin    Start time = 17:09:34
Data file closed at 17:20:57

Filename = f:\data\06111718.bin    Start time = 17:18:31
Data file closed at 17:29:54

Filename = f:\data\06111727.bin    Start time = 17:27:28
Data file closed at 17:38:51

Filename = f·\data\06111736.bin    Start time = 17.36:25
Data file closed at 17.47 48

Filename = f:\data\06111745.bin    Start time = 17:45:22
Data file closed at 17·56·45

Filename = f:\data\06111754.bin    Start time = 17:54:19
Data file closed at 18:5:42

Filename = f.\data\06111803.bin    Start time = 18:03:15
Data file closed at 18:14 38

Filename = f \data\06111812.bin    Start time = 18:12:12
Data file closed at 18.23:35

Filename = f:\data\06111821.bin    Start time = 18:21:09
Data file closed at 18:32:32

Filename = f:\data\06111830.bin    Start time = 18:30:06
Data file closed at 18:41:29

Filename = f·\data\06111839.bin    Start time = 18:39:03
Data file closed at 18·50.26

Filename = g \data\06111848 bin    Start time = 18:48:00
Data file closed at 18 59:23

Filename = g:\data\06111856.bin    Start time = 18:56:57
Data file closed at 19:8:20

Filename = g·\data\06111905.bin    Start time = 19:05:53
Data file closed at 19:17:16

Filename = g·\data\06111914.bin    Start time = 19:14:50
Data file closed at 19:26:13

Filename = g \data\06111923 bin    Start time = 19:23:47
Data file closed at 19 35 10
```

```
Filename = g \data\06111932.bin   Start time = 19:32:44
Data file closed at 19.44:7

Filename = g \data\06111941.bin   Start time = 19:41:41
Data file closed at 19.53.4

Filename = g \data\06111950 bin   Start time = 19·50 38
Data file closed at 20 2·1

Filename = g \data\06111959 bin   Start time = 19:59.35
Data file closed at 20 10.57

Filename = g \data\06112008 bin   Start time = 20:08:32
Data file closed at 20 19:54

Filename = g \data\06112017.bin   Start time = 20:17·28
Data file closed at 20 28 51

Filename = g \data\06112026.bin   Start time = 20.26 25
Data file closed at 20 37 48

Filename = g \data\06112035 bin   Start time = 20:35.22
Data file closed at 20 46.45

Filename = g.\data\06112044 bin   Start time = 20:44:19
Data file closed at 20 55·42

Filename = h \data\06112053.bin   Start time = 20.53:16
Data file closed at 21 4 58

Filename = h \data\06112102 bin   Start time = 21 02 13
Data file closed at 21 13 51

Filename = h \data\06112111.bin   Start time = 21·11:10
Data file closed at 21 22:48

Filename = h:\data\06112120.bin   Start time = 21:20:07
Data file closed at 21:31:44

Filename = h·\data\06112129.bin   Start time = 21:29:03
Data file closed at 21:40:41

Filename = h \data\06112138 bin   Start time = 21:38·00
Data file closed at 21 49.38

Filename = h·\data\06112146 bin   Start time = 21:46:57
Data file closed at 21 58:38

Filename = h.\data\06112155.bin   Start time = 21:55:54
Data file closed at 22 7:32

Record 3     Start time = 9 00 0 7/11/98   Stop time = 14:00:0 7/11/98
```

(NOTE THESE FILES WERE NOT AUTOMATICALLY WRITTEN INTO THE LOG FILE, THEY HAVE BEEN TYPED IN BY HAND)

```
Filename = h:\data\07110900.bin Start time = 09:00

Filename = h:\data\07110909.bin Start time = 09:09

Filename = h:\data\07110917.bin Start time = 09:17

Filename = h:\data\07110926.bin Start time = 09:26

Filename = h:\data\07110935.bin Start time = 09:35

Filename = h:\data\07110944.bin Start time = 09:44

Filename = h:\data\07110953.bin Start time = 09:53

Filename = i:\data\07111002.bin Start time = 10:02

Filename = i:\data\07111011.bin Start time = 10:11

Filename = i:\data\07111020.bin Start time = 10:20

Filename = i:\data\07111029.bin Start time = 10:29

Filename = i:\data\07111038.bin Start time = 10:38

Filename = i:\data\07111047.bin Start time = 10:47

Filename = i:\data\07111056.bin Start time = 10:56

Filename = i:\data\07111105.bin Start time = 11:05

Filename = i:\data\07111114.bin Start time = 11:14

Filename = i:\data\07111123.bin Start time = 11:23

Filename = i:\data\07111132.bin Start time = 11:32

Filename = i:\data\07111141.bin Start time = 11:41

Filename = i:\data\07111150.bin Start time = 11:50

Filename = i:\data\07111159.bin Start time = 11:59

Filename = i:\data\07111207.bin Start time = 12:07

Filename = j:\data\07111216.bin Start time = 12:16

Filename = j:\data\07111225.bin Start time = 12:25
Filename = j \data\07111234.bin Start time = 12:34

Filename = j \data\07111243.bin Start time = 12:43

Filename = j \data\07111252 bin Start time = 12.52

Filename = j \data\07111301 bin Start time = 13 01

Filename = j \data\07111310 bin Start time = 13·10

Filename = j:\data\07111319.bin Start time = 13:19

Filename = j \data\07111328.bin Start time = 13:28

Filename = j \data\07111337 bin Start time = 13:37

Filename = j \data\07111346.bin Start time = 13.46
```

Ulrica VLA deployment 8 recording log

```
Node 2, VLA, Array [illegible]

1:00:00     8/11/98     1 02 00     8/11/98     0
11:00:00    8/11/98     20:00 00    8/11/98     2


Record 1    Start time = 1:0 0 8/11/98    Stop time = 1:2:0 8/11/98

            Filename = c:\data\08110100.bin    Start time = 01:00:04
            Data file closed at 1:11:40

Record 2    Start time = 11 0 0 8/11/98    Stop time = 20:0:0 8/11/98

            Filename = c:\data\08111100.bin    Start time = 11:00:04
            Data file closed at 11:11.39

            Filename = c:\data\08111109.bin    Start time = 11:09:01
            Data file closed at 11:20:36

            Filename = c:\data\08111117.bin    Start time = 11:17:58
            Data file closed at 11.29:33

            Filename = c:\data\08111126.bin    Start time = 11:26:55
            Data file closed at 11 38 30

            Filename = c:\data\08111135 bin    Start time = 11:35.52
            Data file closed at 11 47.28

            Filename = c:\data\08111144.bin    Start time = 11:44:49
            Data file closed at 11:56:31

            Filename = c:\data\08111153.bin    Start time = 11:53:45
            Data file closed at 12:5:22

            Filename = c:\data\08111202.bin    Start time = 12:02:42
            Data file closed at 12.14 19

            Filename = c:\data\08111211 bin    Start time = 12:11:39
            Data file closed at 12.23:18

            Filename = c:\data\08111220.bin    Start time = 12:20:36
            Data file closed at 12:32:13

            Filename = c:\data\08111229.bin    Start time = 12:29:33
            Data file closed at 12:41:9

            Filename = c:\data\08111238.bin    Start time = 12:38:30
            Data file closed at 12 50 7

            Filename = c:\data\08111247.bin    Start time = 12:47:27
```

```
Data file closed at 12 59·3

Filename = c \data\08111256.bin    Start time = 12:56:24
Data file closed at 13:8:0

Filename = d \data\08111305.bin    Start time = 13:05:20
Data file closed at 13 17 27

Filename = d \data\08111314 bin    Start time = 13:14 17
Data file closed at 13 26 18

Filename = d \data\08111323.bin    Start time = 13.23·14
Data file closed at 13 35:15

Filename = d \data\08111332.bin    Start time = 13 32·11
Data file closed at 13·44 13

Filename = d \data\08111341.bin    Start time = 13:41:08
Data file closed at 13 53 52

Filename = d \data\08111350 bin    Start time = 13 50·05
Data file closed at 14 2 5

Filename = d \data\08111359.bin    Start time = 13:59:02
Data file closed at 14·11:3

Filename = d \data\08111407.bin    Start time = 14:07:59
Data file closed at 14:20:0

Filename = d \data\08111416 bin    Start time = 14·16:55
Data file closed at 14 28·56

Filename = d \data\08111425 bin    Start time = 14 25.52
Data file closed at 14 37 53

Filename = d \data\08111434 bin    Start time = 14·34 49
Data file closed at 14 46 56

Filename = d \data\08111443.bin    Start time = 14:43:46
Data file closed at 14 55 47

Filename = d·\data\08111452 bin    Start time = 14:52:43
Data file closed at 15 4 44

Filename = d \data\08111501 bin    Start time = 15:01.40
Data file closed at 15 13·40

Filename = d \data\08111510 bin    Start time = 15:10:37
Data file closed at 15·22:38

Filename = e \data\08111519.bin    Start time = 15:19:33
Data file closed at 15:31·11
```

```
        Filename = e:\data\08111528.bin    Start time = 15:28:30
        Data file closed at 15:40:7

        Filename = e:\data\08111537.bin    Start time = 15:37:27
        Data file closed at 15:49:4

        Filename = e:\data\08111546.bin    Start time = 15:46:24
        Data file closed at 15:58:1

        Filename = e:\data\08111555.bin    Start time = 15:55:21
        Data file closed at 16:6:58

        Filename = e:\data\08111604.bin    Start time = 16:04:18
        Data file closed at 16:15:53

        Filename = e:\data\08111613.bin    Start time = 16:13:15
        Data file closed at 16:24:50

        Filename = e:\data\08111622.bin    Start time = 16:22:12
        Data file closed at 16:33:46

        Filename = e:\data\08111631.bin    Start time = 16:31:08
        Data file closed at 16:42:43

        Filename = e:\data\08111640.bin    Start time = 16:40:05
        Data file closed at 16:51:40

        Filename = e:\data\08111649.bin    Start time = 16:49:02
        Data file closed at 17:0:37

        Filename = e:\data\08111657.bin    Start time = 16:57:59
        Data file closed at 17:9:34

        Filename = e:\data\08111706.bin    Start time = 17:06:56
        Data file closed at 17:18:32

        Filename = e:\data\08111715.bin    Start time = 17:15:53
        Data file closed at 17:27:29

Acoustic Record started at 17:27.29 on 8/11/98

        Filename = e:\data\08111724.bin    Start time = 17:24:50
        Data file closed at 17:36:26
Acoustic Record stopped at 17:36:26 on 8/11/98

        Filename = f:\data\08111733.bin    Start time = 17:33:47
        Data file closed at 17:45:23

        Filename = f:\data\08111742.bin    Start time = 17:42:43
        Data file closed at 17:54:20
```

```
Acoustic Record started at 17 54.20 on 8/11/98

          Filename = f:\data\08111751 bin     Start time = 17:51:40
          Data file closed at 18:3.17
          Acoustic Record started at 18 3:17 on 8/11/98

          Filename = f \data\08111800.bin     Start time = 18:00:37
          Data file closed at 18 12:14
          Acoustic Record started at 18 12 14 on 8/11/98

          Filename = f \data\08111809 bin     Start time = 18:09:34
          Data file closed at 18.21.10
          Acoustic Record started at 18 21:10 on 8/11/98

          Filename = f \data\08111818 bin     Start time = 18:18:31
          Data file closed at 18:30.8
          Acoustic Record started at 18 30 8 on 8/11/98

          Filename = f \data\08111827 bin     Start time = 18 27 28
          Data file closed at 18 39 5
          Acoustic Record started at 18 39 5 on 8/11/98

          Filename = f.\data\08111836 bin     Start time = 18:36:25
          Data file closed at 18:48:1
          Acoustic Record started at 18:48:1 on 8/11/98

          Filename = f \data\08111845.bin     Start time = 18:45:21
          Data file closed at 18:56:57
          Acoustic Record started at 18:56:57 on 8/11/98

          Filename = f \data\08111854 bin     Start time = 18:54 18
          Data file closed at 19 5 54
          Acoustic Record started at 19 5 54 on 8/11/98

          Filename = f \data\08111903 bin     Start time = 19:03:15
          Data file closed at 19.14:51
          Acoustic Record started at 19:14 51 on 8/11/98

          Filename = f \data\08111912 bin     Start time = 19:12:12
          Data file closed at 19 23 48
          Acoustic Record started at 19 23:48 on 8/11/98

          Filename = f \data\08111921 bin     Start time = 19:21:09
          Data file closed at 19 32 44
          Acoustic Record started at 19 32 44 on 8/11/98

          Filename = f \data\08111930.bin     Start time = 19:30:06
          Data file closed at 19:41:41
          Acoustic Record started at 19:41:41 on 8/11/98

          Filename = f \data\08111939.bin     Start time = 19:39:03
          Data file closed at 19.50:38
```

```
    Acoustic Record started at 19.50 38 on 8/11/98

    Filename = g \data\08111948 bin    Start time = 19:48:00
    Data file closed at 19.59:35
    Acoustic Record started at 19:59.35 on 8/11/98

    Filename = g:\data\08111956.bin    Start time = 19:56:57
    Data file closed at 20·8·31
    Acoustic Record started at 20:8:31 on 8/11/98

    Filename = g:\data\08112005.bin    Start time = 20:05:53
    Data file closed at 20·17:28
    Acoustic Record started at 20.17.28 on 8/11/98

    Filename = g \data\08112014.bin    Start time = 20:14:50
    Data file closed at 20 26.25
    Acoustic Record started at 20:26:25 on 8/11/98

    Filename = g·\data\08112023.bin    Start time = 20:23:47
    Data file closed at 20:35:22
    Acoustic Record started at 20:35:22 on 8/11/98

    Filename = g:\data\08112032.bin    Start time = 20:32:44
    Data file closed at 20:44:19
    Acoustic Record started at 20·44·19 on 8/11/98

    Filename = g.\data\08112041 bin    Start time = 20:41.41
    Data file closed at 20 53 14
    Acoustic Record started at 20:53:14 on 8/11/98

    Filename = g·\data\08112050 bin    Start time = 20:50:38
    Data file closed at 21:2:11
    Acoustic Record started at 21:2:11 on 8/11/98

    Filename = g:\data\08112059.bin    Start time = 20:59:35
    Data file closed at 21 11:8
    Acoustic Record started at 21:11:8 on 8/11/98

    Filename = g \data\08112108.bin    Start time = 21:08·31
    Data file closed at 21.20:5
    Acoustic Record started at 21:20:5 on 8/11/98

    Filename = g:\data\08112117.bin    Start time = 21:17:28
    Data file closed at 21.29:0
    Acoustic Record started at 21:29:0 on 8/11/98

    Filename = g:\data\08112126.bin    Start time = 21:26:25
    Data file closed at 21:37:56
    Acoustic Record stopped at 21:37:56 on 8/11/98

Record - Acoustic Crash Record at 23 17.1 8/11/98
```

```
          Filename = g \data\08112317.bin    Start time = 23.17:05
          Data file closed at 23.28 43
          Acoustic Record started at 23:28:43 on 8/11/98

          Filename = g:\data\08112326 bin    Start time = 23.26:02
          Data file closed at 23 37:31
          Acoustic Record started at 23 37 31 on 8/11/98

          Filename = h \data\08112334 bin    Start time = 23.34:59
          Data file closed at 23 47:6
          Acoustic Record started at 23:47:6 on 8/11/98

          Filename = h \data\08112343.bin    Start time = 23:43:56
          Data file closed at 23:55:57
          Acoustic Record started at 23:55:57 on 8/11/98

          Filename = h \data\08112352.bin    Start time = 23:52:53
          Data file closed at 0 5 0
          Acoustic Record started at 0:5 0 on 9/11/98

          Filename = h \data\09110001 bin    Start time = 00:01:50
          Data file closed at 0 13 51
          Acoustic Record started at 0 13 51 on 9/11/98

          Filename = h \data\09110010 bin    Start time = 00 10:47
          Data file closed at 0 22.48
          Acoustic Record started at 0.22:48 on 9/11/98

          Filename = h \data\09110019.bin    Start time = 00:19:43
          Data file closed at 0 31 45
          Acoustic Record started at 0.31 45 on 9/11/98

          Filename = h \data\09110028 bin    Start time = 00 28.40
          Data file closed at 0 40 47
          Acoustic Record started at 0 40 47 on 9/11/98

          Filename = h \data\09110037 bin    Start time = 00:37:37
          Data file closed at 0:49 38
          Acoustic Record stopped at 0 49:38 on 9/11/98

Record - Acoustic Crash Record at 10:27:47 10/11/98

          Filename = h \data\10111027 bin    Start time = 10:27:51
          Data file closed at 10 39 59
          Acoustic Record started at 10 39 59 on 10/11/98

          Filename = h \data\10111036.bin    Start time = 10:36:48
          Data file closed at 10:48:49
          Acoustic Record started at 10:48:49 on 10/11/98

          Filename = h.\data\10111045.bin    Start time = 10:45:45
          Data file closed at 10:57:46
```

```
Acoustic Record started at 10:57:46 on 10/11/98

Filename = h:\data\10111054.bin    Start time = 10:54:42
Data file closed at 11:6:43
Acoustic Record started at 11:6:43 on 10/11/98

Filename = h:\data\10111103.bin    Start time = 11:03:39
Data file closed at 11:15:45
Acoustic Record started at 11:15:45 on 10/11/98

Filename = h:\data\10111112.bin    Start time = 11:12:36
Data file closed at 11:24:37
Acoustic Record started at 11:24:37 on 10/11/98

Filename = h:\data\10111121.bin    Start time = 11:21:33
Data file closed at 11:33.34
Acoustic Record started at 11:33.34 on 10/11/98

Filename = i:\data\10111130.bin    Start time = 11:30:30
Data file closed at 11:42:31
Acoustic Record started at 11:42:31 on 10/11/98

Filename = i:\data\10111139.bin    Start time = 11:39:26
Data file closed at 11:51:28
Acoustic Record started at 11:51:28 on 10/11/98

Filename = i:\data\10111148.bin    Start time = 11:48:23
Data file closed at 12:0:24
Acoustic Record started at 12:0:24 on 10/11/98

Filename = i:\data\10111157.bin    Start time = 11:57:20
Data file closed at 12:9:21
Acoustic Record started at 12:9:21 on 10/11/98

Filename = i:\data\10111206.bin    Start time = 12:06:17
Data file closed at 12:18:19
Acoustic Record started at 12:18.19 on 10/11/98

Filename = i:\data\10111215.bin    Start time = 12:15:14
Data file closed at 12.27.16
Acoustic Record started at 12:27:16 on 10/11/98

Filename = i:\data\10111224.bin    Start time = 12:24:11
Data file closed at 12:36:13
Acoustic Record started at 12:36:13 on 10/11/98

Filename = i:\data\10111233.bin    Start time = 12:33:08
Data file closed at 12:45:10
Acoustic Record started at 12:45:10 on 10/11/98

Filename = i:\data\10111242.bin    Start time = 12:42:04
Data file closed at 12:54:7
```

```
Acoustic Record started at 12 54.7 on 10/11/98

Filename = i \data\10111251 bin    Start time = 12:51·01
Data file closed at 13 3.4
Acoustic Record started at 13 3:4 on 10/11/98

Filename = i \data\10111259 bin    Start time = 12:59·58
Data file closed at 13 12 1
Acoustic Record started at 13.12 1 on 10/11/98

Filename = i \data\10111308 bin    Start time = 13:08:55
Data file closed at 13 20 57
Acoustic Record started at 13:20·57 on 10/11/98

Filename = i \data\10111317.bin    Start time = 13:17·52
Data file closed at 13 30:0
Acoustic Record started at 13.30 0 on 10/11/98

Filename = i \data\10111326 bin    Start time = 13.26 49
Data file closed at 13 38 52
Acoustic Record started at 13 38 52 on 10/11/98

Filename = i \data\10111335.bin    Start time = 13·35.46
Data file closed at 13 47.49
Acoustic Record started at 13:47:49 on 10/11/98

Filename = j \data\10111344.bin    Start time = 13:44:43
Data file closed at 13.56·46
Acoustic Record started at 13·56 46 on 10/11/98

Filename = j \data\10111353 bin    Start time = 13 53 39
Data file closed at 14 5 46
Acoustic Record started at 14 5 46 on 10/11/98

Filename = j \data\10111402 bin    Start time = 14 02.36
Data file closed at 14 14 39
Acoustic Record started at 14 14:39 on 10/11/98

Filename = j \data\10111411.bin    Start time = 14:11:33
Data file closed at 14 23:36
Acoustic Record started at 14 23:36 on 10/11/98

Filename = j \data\10111420 bin    Start time = 14·20 30
Data file closed at 14 32 32
Acoustic Record stopped at 14 32 32 on 10/11/98
```

11.6 SRP tape log

Tape	Tape Channel Description L=Left R=Right	Tape On (UTC)	TapeOff (UTC)	Date	Comments
Tape1	L=Trailing Hydrophone R=Monitor Hydrophone	06:15:00	06:43:06	3/11/98	PD1
	“	11:40:35	13:21:18	3/11/98	TOW2
Tape2	L=Trailing Hydrophone R=Monitor Hydrophone	00:19:28	00:29:30	4/11/98	MF3
	“	04:07:52	04:29:33	6/11/98	PD2
	“	04:35:51	05:13:10	6/11/98	PD3
	“	06:05:25	06:44:35	6/11/98	Ship Quiet PD4
	“	07:46:50	??	6/11/98	TOW4 NB3 TOW5 NB4
Tape3	L=Trailing Hydrophone R=Monitor Hydrophone	10:55:40	11:08:44	6/11/98	TOW5 NB4
	“	12:39:00	13:01:00	7/11/98	DRIFT1 NB5
	“	13:56:37	14:02:15	7/11/98	Partial Shut-down Ambient Noise
	“	04:49:30	05:13:50	8/11/98	PD5
	“	06:02:35	06:28:40	8/11/98	PD6
	“	09:06:15	09:34:??	8/11/98	PD7
Tape4	L=Trailing Hydrophone R=Monitor Hydrophone	11:40:40	11:50:40	8/11/98	TOW6 NB6
	“	12:55:30	13:08:30	8/11/98	TOW6 NB6
	“	23:26:31	00:35:20	9/11/98	PD8
Tape5	L=Amp Input Monitor R=Trailing Hydrophone	04:54:30	05:28:08	9/11/98	RDS1 ACOMM Ship Drifting

	“	06.51·40	07.15.33	9/11/98	RDS1 Outbound
	“	06:22·40	06·46:12	10/11/98	RDS1 ACOMM
	“	09 03.50	09·20·50	10/11/98	RDS2 ACOMM
	“	11 38.42	11.58.00	10/11/98	RDS3 ACOMM
	“	12:45:30	End of tape	10/11/98	RDS3 ACOMM
Tape6	L=Amp Input Monitor R=Trailing Hydrophone	13:04:35	13:20:00	10/11/98	RDS1 ACOMM
	“	13·57:52	14:22.14	10/11/98	RDS4 ACOMM
	“	15 06:29	15 24:41	10/11/98	RDS5 ACOMM
	“	16:26:00	16:42:32	10/11/98	RDS6 ACOMM
	“	17:39·50	17:56:08	10/11/98	RDS7 ACOMM
	“	18:27:39	18:45:45	10/11/98	RDS8 ACOMM
	“	19·14·09	19:37.40	10/11/98	RDS9 ACOMM Tape Finished
	“	10 39 35	19.55·31	10/11/98	RDS9 ACOMM Started new tape

12. SUMMARY

This report contains a collection of non-acoustic data gathered during the TTCP sea trial RDS-2. The report by itself is not complete, but helps in finding relevant information. The Environmental CD, created along this report, contains the original files, and is available to the TTCP RDS-2 participants.

The authors of this report can help the reader in locating non-acoustic data that are not included in this report, as well as the Trial Director, Mr. Ian Cox, DSTO, Australia. The reader is referred to the individual laboratories if acoustic data are needed.

ANNEX A   DAILY PLANS AND COMMUNICATIONS

This section contains the daily plans produced by Mr. Ian Cox, RDS-2 trial director. Also included are copies of the daily faxes and emails between the ships that may have led to changes in plans.

RDS2 Trials **Proposed Operations for 31 Oct 1998**

Scheduled Activities

0730 local – ?	P/U Aircon & Manawanui mail
	Transit back to test site
2000	back at test site

Opportunity Based Activities

Continue SRP checkout ~ pm

!!! DSTO personnel: before placing anything in the water,
(a) Obtain Bridge permission
(b) Notify Bridge when deployed &
(c) Notify Bridge when recovered.

Personnel Transfers:

Message from the Bridge:

Fishing line was found over the stern,
Please notify bridge if intending to fish.

RDS2 Trials Proposed Operations for 1 Nov 1998 -- Issue 2025 /31 local

Scheduled Activities

Time Local	
0900	P3C on site, delay Appendix C until ~ 1400
0830- 1100	ULITE Deployment with assistance from SS
	SRP workup for MF runs, tones to be advised, MF run MFP 1 tones Annex I4 - ~ 3hrs
AM	ULRICA deployment from PC ???
PM	MF run MFP 1 tones Annex I4 - ~ 3hrs
1400	Annex B, Appendix C
1700	ULITE Location Run (no projector required) - ~ 4hrs

Opportunity Based Activities

Deploy Sea-noise buoy from SS

!!! DSTO personnel: before placing anything in the water,

(a) Obtain Bridge permission
(b) Notify Bridge when deployed &
(c) Notify Bridge when recovered.

Personnel Transfers:

Jeff Schindall to PC & MN if possible & return to SS at end
Trevor Jackson to PC & MN & return to check email system
Mark Stevenson to MN for ULITE deployment, possible stay on MN with Chris loh to SS

Message from the Bridge:

RDS2 Trials Proposed Operations for 2 Nov 1998 -- Issue 1900 /01 local

Scheduled Activities

Time Local	
0745	MN transfer 2X 8 MK 61 SUS
0800-1400	Transit 60 nm to Bathurst Island dropping SUS every 5 nm
1400-1900	Transit back to Trials site.
1900-2100	ULITE Location Run (no projector required), triangular run about ULITE
AM	ULRICA deployment from PC ??? OBS deployment from MN ???

Opportunity Based Activities

Deploy CTD, XBT from SS

!!! DSTO personnel: before placing anything in the water,

(a) Obtain Bridge permission
(b) Notify Bridge when deployed &
(c) Notify Bridge when recovered.

Personnel Transfers:

Jeff Schindall to PC & MN if possible & return to SS at end
Mark Stevenson to MN for ULITE work, possible stay on MN with
Chris loh to SS on return??

Message from the Bridge:

RDS2 Trials Proposed Operations for Tue 3 Nov 1998 -- Issue 1900 /01 local

Scheduled Activities

Time Local	
0700	5 min briefing for Chief Mate & Bosun
0800-1200	MF tone Series, SS deploys SRP along specified tracks and set speed. DSTO DOPSS Preparation aboard PC Striker expected on station 0900 for 5 post ambient noise & area surveillance for ~ 8 hrs
~1200	DSTO Deploy DOPSS from PC
1300-1600	Passive Detection runs, with SS shut down in selected positions (as many as possible within the time limit), when transiting between next site, transmit MF tones.
1600-2000	ULITE Location Run (no projector required), triangular run about ULITE or MF Serials (TBC)
AM	ULRICA deployment from PC ??? FODA deployment from MN ?? OBS deployment from MN ???

Opportunity Based Activities

Deploy CTD, XBT, Current Profiler from SS

!!! DSTO personnel: before placing anything in the water,
(a) Obtain Bridge permission
(b) Notify Bridge when deployed &
(c) Notify Bridge when recovered.

Personnel Transfers:

Jeff Schindall to PC & MN if possible & return to SS at end
Mark Stevenson to MN for ULITE work ???
P Jackson, T Jackson, C Gillard & I Woon to PC

Message from the Bridge:

RDS2 Trials Proposed Operations for Tue 3 Nov 1998 -- Issue 2013 /02 local
Scheduled Activities

Time Local	
0700	5 min briefing for Chief Mate & Bosun
0800-1200	MF tone Series workup, SS deploys SRP along specified tracks and at a set speed, requires confirmation from ULITE that signals are visible.
0900	Airforce expected on station 0900 for 5 post ambient noise & area surveillance for ~ 8 hrs
0930	Meeting aboard SS UK, Au, Ca & US to discuss tones for Passive Detection Runs, SS to transfer UK personnel.
1000-1200	DSTO DOPSS Preparation aboard PC, SS workboat required for transfers
~1200	DSTO Deploy DOPSS from PC
1300-1600	Passive Detection runs, with **SS shut down** in selected positions (as many as possible within the time limit), when transiting between next site, transmit MF tones.
1600-2000	Matched Field Serials (TBA) ***** possible change*****
AM	ULRICA deployment from PC ??? FODA deployment from MN ??

Opportunity Based Activities

Deploy CTD, XBT, Current Profiler from SS

!!! DSTO personnel: before placing anything in the water,
(a) Obtain Bridge permission
(b) Notify Bridge when deployed &
(c) Notify Bridge when recovered.

Personnel Transfers:

Jeff Schindall to PC & MN if possible & return to SS at end
Mark Stevenson to MN for ULITE work ???
P Jackson, T Jackson, C Gillard & I Woon to PC
SS pick up and return UK visitors

RDS2 Trials Proposed Operations for WED 4 Nov 1998 -- Issue 2030/01 local

Scheduled Activities (SUBJECT TO RAPID CHANGE)

Time Local	
0700	5 min briefing for Chief Mate & Bosun
~0800	Transfer 3 US ULITE to SS to assist in RF modem installation.
~0900	MF tone Series, SS deploys SRP along specified tracks and at a set speed.
	RF Modem set to work
? 1000	P Jackson & I Woon to PC to investigate u/s DOPSS
AM	ULRICA recovery from PC ??? FODA repair & deployment again from MN ?? OBS RF link repair on PC
PM	Matched Field Serials (TBA) ***** possible change*****

Opportunity Based Activities

Bathymetry Grid runs – Terry Trainor OIC
Deploy CTD, XBT, Current Profiler from SS, as required

!!! DSTO personnel: before placing anything in the water,
(a) Obtain Bridge permission
(b) Notify Bridge when deployed &
(c) Notify Bridge when recovered.

Personnel Transfers:

Jeff Schindall to PC & MN, stay on PC for rest of trial
Mark Stevenson to MN for ULITE work ???
3 US personnel to SS, Sue to stay on SS, 2 to return to MN later in the day.
I Woon, P Jackson to PC & return

Fax from Alan Parsons to Ian Cox, 04/11/1998, 19:29 local

Plan for Thur 5, Fri 6 and Sat 7 Nov

Thur 5 Nov

0800	BRONCO on station 8 nm North of Ulite
0800 – 1000	Deploy Ulrica HLA set to record continuously for 24 hours
1000 – 1100	Deploy Octopus
1100 – 1400	Calibrate Ulrica HLA
1400 – 1500	BRONCO transit back to vicinity of Ulite
1500 – 1800	Deploy Ulrica HLA + Ulrica VLA each set to record as follows: 1800 - 2200 5 Nov (for calibration) 1300 - 2200 6 Nov (for SRP runs)
1800 – 2200	Calibrate Ulrica HLA + Ulrica VLA

Fri 6 Nov

0700	BRONCO on station 8 nm North of Ulite ready to recover Octopus
0700 – 0800	Recover Octopus.
0800 – 1000	Recover Ulrica HLA
1000 – 1100	BRONCO transit back to vicinity of Ulite
1100 – 1300	Deploy DOPSS
1300 – 1600	Complete SRP detection run started on 3 Nov (RUN 02)
1600 – 2200	Perform further SRP circumferential and radial MF and propagation runs (including some higher frequency tones)

Sat 7 Nov

0900 – 1200	Perform SRP radial detection run on different bearing
1200 – 1300	Recover DOPSS
1300 – 1700	Recover Ulrica HLA + Ulrica VLA
1700 – 1800	BRONCO transit to site nm North of Ulite to deploy Ulrica VLA
1800 – 2100	Deploy Ulrica VLA and calibrate

Email from Ian Cox to Alan Parsons 05/11/1998, 08:05 local

Subject: Comments on AP Plan sent Wed 04 Nov.
Date: Thu, 5 Nov 1998 08:04:48 +1030
From: root <root@modtrials-2mod.dsto.defence.gov.au>
To: southernsurveyor@modtrials-2mod.dsto.defence.gov.au

For Alan Parsons

Alan,
Good morning !
Hope the setbacks haven't created too much dissapointment. We still have a lot of time to obtain good data on remaining systems. Your Plan fits in well with what I had intended for Friday and Mark is happy with the overall outline. Our comments on the Plan are listed below:

Fri 6 Nov

1) We have put our current meter down overnight in an attempt to get the period and magnitude of the tidal currents. We think we could use the rather large tidal currents to our advantage by allowing Southern Surveyor to drift on the current with the SRP deployed emitting the required tones and SS not completely shut down but with just main engines off. Mark Stevenson will/has done a recording with SS sitting at anchor this morning, with and without SS main engines running to see what the differences are, hopefully quite a lot. The idea here is to provide a moving tone source albeit slow(<2 kn) but able to provide many more tones in the water with higher S/N than when SS main engine is running and without SS having to shut SS completely down. By the time we get back from our SUS run today Mark should be able to say whether this idea is feasible.

2) According to the tide table for this area the highest tidal flow is likely around 0930 (local) on Nov 6 and this may be one of the times to do a drift "tow" and when Pacific Conquest is some distance away.

3) 1300-1600: I may be able to push the time period to ~ 1630 to give us more time when SS is completely shut down although if the method above works then we could do Passive Detection runs whenever we like.

4) 1600-2200: We wondered when you were going to request tones in the higher frequency region more inline with your ULRICA arrays. What frequencies & levels and how many do you require ?

Sat 7 Nov

1) 0900-1200: To conduct Radial detection runs using our current method on SS requires SS to be completely shut down during this period, is this what you expect for this period ?

2) 1200-1300: DOPSS is not recoverable, when we deploy on Friday the time in the water is governed by the amount of fibre data cable paid out when PC is drifting or moving. In any event our DOPSS activity will only last 4-5 hrs.

When we return later today it may be a good idea to have another meeting to firm up on what we could do for the next couple of days.

Regards

Ian Cox

Fax from Alan Parsons to Ian Cox, 05/11/1998, 20:52 local

Plan for Thur 5, Fri 6 and Sat 7 Nov (Issue 2)

Thur 5 Nov

0800 BRONCO on station 10 nm North of Ulite

0800 – 1000 Deploy Ulrica HLA set to record as follows:
1100 – 1400 (continuous for calibration)
1400 – 0600 on 7 Nov (every hour on the hour recording for 30 min)

1000 – 1100 Deploy Octopus

1100 – 1730 Calibrate Ulrica HLA

1730 – 1900 BRONCO transit back to vicinity of Ulite

2000 – 2130 Deploy Ulrica VLA set to record as follows:
1000 - 2200 6 Nov
0900 - 1400 7 Nov

Fri 6 Nov

0500 BRONCO on station 10 nm North of Ulite ready to recover Octopus

0500 – 0600 Recover Octopus.

0600 – 0800 BRONCO transit back to vicinity of Ulite

0800 – 1000 Deploy Ulrica HLA set to record as follows:
1000 - 2200 6 Nov
0900 - 1400 7 Nov

1000 – 1200 Calibrate Ulrica HLA + Ulrica VLA

1200 - 1300 Deploy DOPSS now or later
Deploy Octopus if time allows

1300 – 1600 Complete SRP outward radial detection run started on 3 Nov (RUN 02) on bearing broadside to Ulrica HLA (location & orientation to be advised)

1600 – 1900 Perform SRP inward radial propagation run on reciprocal bearing to within 0.5nm of Ulrica HLA.

160 Hz	150 dB
195	150
245	152
315	158
470	162
590	166

Tow

(if this is not full power then increase all levels pro rata to achieve full power)

1900 – 2200 Perform SRP outward radial propagation run starting 0.5nm from Ulrica HLA.
55 Hz max level

Sat 7 Nov

0900 – 1200 Perform SRP run (Mark Stevenson to advise)

1200 – 1600 Recover Ulrica HLA + Ulrica VLA

1600 – 2400 DERA Comms experiment involving BRONCO and KIWI

RDS2 Trials Proposed Operations for THU 5 Nov 1998 -- Issue 2030 /01 local

Scheduled Activities (*SUBJECT TO RAPID CHANGE*)

Time Local	
0700	5 min briefing for Chief Mate & Bosun
~0755	Transfer Mark & Sue to MN, No engines until advised by MS, Recover Current Meter
~0815	KIWI transfers SUS + 2 personnel to MN, (Engines running)
~0830-0900	Begin SD2 runs dropping SUS every 30 min as per Mondays run. Drogues required. Fauna Watchers required.
800-1400	SD2 – SUS runs Bathymetry recording for outward track.
1400-1900	transit back to trails site.
1930	Discussion on Fridays events with all Ships

Opportunity Based Activities

Consolidation of Projector and GPS logs for distribution to all participants.
Deploy CTD, XBT, Current Profiler from SS, as required

!!! DSTO personnel: before placing anything in the water,

(a) Obtain Bridge permission

(b) Notify Bridge when deployed &

(c) Notify Bridge when recovered.

Personnel Transfers:

Mark Stevenson & Sue to MN for ULITE work ???
KIWI bomber & Chris Loh to SS for the day

ULITE priorities as of 7 Nov 1998

Fr: Mark
To: Ian
Subj: 7Nov98 mtg

ULITE priorities next few days:

① replace broken f/o riser cable today.
② verify ULITE good
③ drifting SRP event
④ deploy ABSES from MN
⑤ lightbulb implosion for DOPSS Sunday
⑥ Another MFP circuit (4 hrs)
⑦ record PDEs
⑧ record ambient noise

Fax from Ian Cox to Alan Parsons, 5/11/1998, approximately 19:00 local

Alan,

I have prepared a proposed plan for the next few days for comments. The start of this afternoons efforts were a bit adhoc and we need need to ensure there are not too many conflicting activities happening when acoustic experiments are being conducted. We need to allocate priorities with the emphasis on gathering valuable data even if there is a risk to deployed equipment which may /will not participate in the rest of the trials period.

There is quite a lot of equipment in the water that needs either repair or recovery. I have indicated that we should declare a non-acoustic day tomorrow and take the necessary action to clean up the patch of water.

I found it difficult to co-ordinate the SRP runs and get my personnel onboard PC for todays attempt at a DOPSS deployment and have therefore requested that Sunday (weather dependent) be available for DOPSS & SRP work. If other systems are in the water (hrs before) before the indicated times then that would be acceptable.

Your Comments welcome,
Ian

Sat 7 Nov

Swap [illegible]

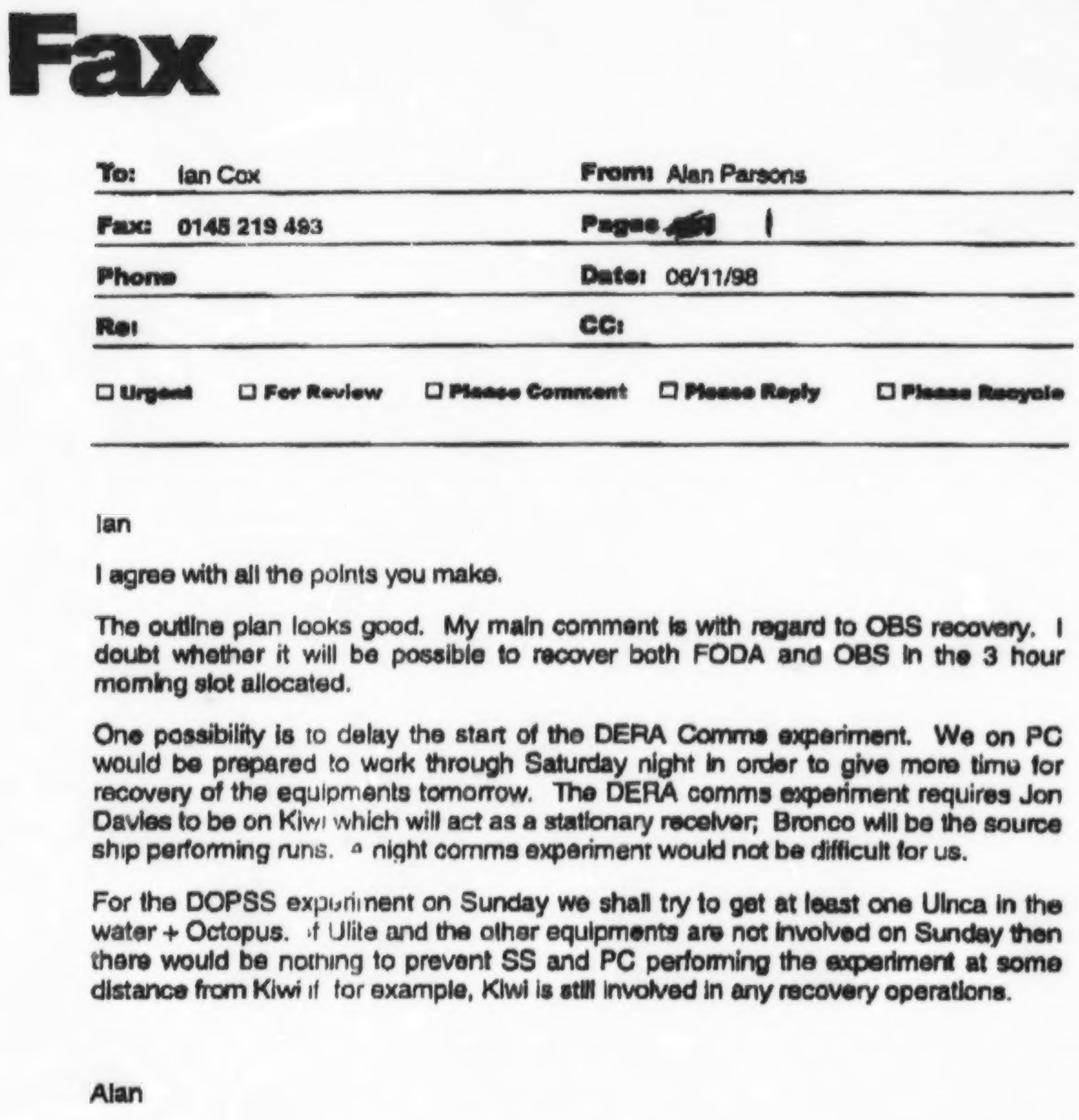
0900 – 1200	MarK Stevenson Repair ULITE with KIWI & BOFFIN workboats PC Recover ULRICA HLA & VLA
	SS recovers Sea-noise buoy
1300-1400	Meeting aboard ? TBA? To discuss progress and remaining activities
1300-1600	Recover FODA & OBS arrays
1600-2400	DERA Comms experiments

Sun 8 Nov

??	??
1145	Transfer 4 DSTO personnel to PC
1200-1300	DOPSS preparation
1300-1330	DOPSS deployment
1330-1630	DOPSS Passive Detection runs at various ranges with SRP on SS, during first shift of SS to a new position, conduct hydrophone location runs with KIWI work boat.
1645	Transfer 4 DSTO personnel back to SS
??	??

Mon 9 Nov

Fax from Alan Parsons to Ian Cox, 6/11/1998, 21:40 local



Fax

To:	Ian Cox	**From:**	Alan Parsons
Fax:	0145 219 493	**Pages:**	1
Phone		**Date:**	06/11/98
Re:		**CC:**	

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☐ **Please Reply** ☐ **Please Recycle**

Ian

I agree with all the points you make.

The outline plan looks good. My main comment is with regard to OBS recovery. I doubt whether it will be possible to recover both FODA and OBS in the 3 hour morning slot allocated.

One possibility is to delay the start of the DERA Comms experiment. We on PC would be prepared to work through Saturday night in order to give more time for recovery of the equipments tomorrow. The DERA comms experiment requires Jon Davies to be on Kiwi which will act as a stationary receiver; Bronco will be the source ship performing runs. A night comms experiment would not be difficult for us.

For the DOPSS experiment on Sunday we shall try to get at least one Ulnca in the water + Octopus. If Ulite and the other equipments are not involved on Sunday then there would be nothing to prevent SS and PC performing the experiment at some distance from Kiwi if for example, Kiwi is still involved in any recovery operations.

Alan

RDS2 Trials Proposed Operations for FRI 6 Nov 1998 -- Issue 2130 /01 local

Scheduled Activities (SUBJECT TO RAPID CHANGE)

Time Local

0700	5 min briefing for Chief Mate & Bosun
~0830	Recover Current Meter
	Transfer Mark & Sue to MN ?? dependent upon MN work for the morning. SS workboat may be required to help in replacing ULITE riser cable.
	Recover seanoise ~ 1 hr for recovery only, refurbish and re-deploy when convenient
	Assist with replacement of ULITE riser cable
1130	Transfer IW, PJ, CG & TJ to PC for DOPSS preparation – WEATHER DEPENDENT
1230	Deploy DOPSS from PC - WEATHER DEPENDENT - ? boat required to do DOPSS lightbulb drops.
1300-1630	Passive Detection Run 2 series, SS shut down for ~ 3 to 4 X 30 min periods + transit times
1630-1930	SRP Tow run towards ULRICA HLA, max tones
1930-2200	SRP Tow run away from ULRICA HLA, 55 hz tone max level

Opportunity Based Activities

Consolidation of Projector and GPS logs for distribution to all participants.
Deploy CTD, XBT, Current Profiler from SS, as required

!!! DSTO personnel: before placing anything in the water,

(a) Obtain Bridge permission
(b) Notify Bridge when deployed &
(c) Notify Bridge when recovered.

Personnel Transfers:

Mark Stevenson & Sue to MN for ULITE work ???

RDS2 Trials Proposed Operations for SAT 7 Nov 1998 -- Issue 2100 /01 local

Scheduled Activities (SUBJECT TO RAPID CHANGE)

ACOUSTIC FREE DAY !!!!!!!

Time Local

0700	5 min briefing for Chief Mate & Bosun
~0830	Recover Current Meter on SS
0900-1200	MN recovers FODA & OBS
	SS Recover Sea-noise ~ 1 hr for recovery only, refurbish and re-deploy when convenient
	Assist with replacement of ULITE riser cable
	PC recovers ULRICA HLA & VLA
1300-1400	Meeting aboard (TBA) to discuss progress & remaining activities
1300-1600	Transfer Mark & Sue to MN ?? dependent upon MN work for the morning. SS workboat may be required to help in replacing ULITE riser cable. Require this time slot because of slack water conditions
1600-2400	DERA Comms Experiment

Opportunity Based Activities

Consolidation of Projector and GPS logs for distribution to all participants.
Deploy CTD, XBT, Current Profiler from SS, as required

Personnel Transfers:

Mark Stevenson & Sue to MN for ULITE work ???

INTENTIONS FOR NEXT DAY - Trying to bargain for a DOPSS day

Sun 8 Nov

??	??
1145	Transfer 4 DSTO personnel to PC
1200-1300	DOPSS preparation
1300-1330	DOPSS deployment
1330-1630 D	OPSS Passive Detection runs at various ranges with SRP on SS, during first shift of SS to a new position, conduct hydrophone location runs with KIWI work boat
1645	Transfer 4 DSTO personnel back to SS

RDS2 Trials Proposed Operations for SUN 8 Nov 1998 -- Issue 1900 /01 local

Scheduled Activities (SUBJECT TO RAPID CHANGE)

Time Local

0700	5 min briefing for Chief Mate & Bosun
Pre 1145	Other ships deploy arrays as required
1145	Transfer 4 DSTO personnel to PC (PJ, TJ, CG, IW)
1200-1300	DOPSS preparation
1300-1330	DOPSS deployment
1330-1630	Passive Detection runs on DOPSS, at various ranges with SRP on SS, during first shift of SS to a new position, conduct hydrophone location runs with KIWI work boat.(TT & MS)
1645	Transfer 4 DSTO personnel back to SS
1830-2000	MF & Propagation run with SRP

Opportunity Based Activities

Consolidation of Projector and GPS logs for distribution to all participants.
Deploy CTD, XBT, Current Profiler from SS, as required

Personnel Transfers:

Mark Stevenson & Sue to MN for ULITE work ???
4 DSTO personnel to PC & return (PJ, TJ, CG, IW)
MS & TT for light bulb drops during PD runs

RDS2 Trials Proposed Operations for MON 9 Nov 1998 -- Issue 2130 /02 local

Scheduled Activities (SUBJECT TO RAPID CHANGE)

Time Local

0700	5 min briefing for Chief Mate & Bosun
	HMAS Launceston arrive to transfer 3 US trials members to SS; 2-3 personnel required to be at SS for transfer to Launceston for transit back to Darwin.
0800-1200	Acoustic Comms set to work & experiment SS transmits tones from SRP
1300-1600	Active Environment Measurements
1645	Transfer 4 DSTO personnel back to SS
1830-2000	MF & Propagation run with SRP

Opportunity Based Activities

Consolidation of Projector and GPS logs for distribution to all participants.
Deploy CTD. XBT. Current Profiler from SS, as required

Personnel Transfers:

Mark Stevenson & Sue to MN for ULITE work ???
4 DSTO personnel to PC & return (PJ, TJ, CG, IW)
MS & TT for light bulb drops during PD runs with KIWI workboat

RDS2 Trials Proposed Operations for TUE 10 Nov 1998 -- Issue 2130 /02 local

Scheduled Activities (SUBJECT TO RAPID CHANGE)

Time Local

0700	5 min briefing for Chief Mate & Bosun
0745	Transfer 4 DSTO personnel to PC to set up DOPSS, SS workboat required
0830	Deploy DOPSS
0845-1200	Passive Detection Runs, with or without SRP
1215	Transfer 4 DSTO personnel back to SS, SS work boat
1230-1300	AE SUS drops & GHCG run
1400-?	Acoustic Comms ? SRP

Opportunity Based Activities

Consolidation of Projector and GPS logs for distribution to all participants.
Deploy CTD, XBT, Current Profiler from SS, as required

Personnel Transfers:

Mark Stevenson & Sue to MN for ABES work ???
4 DSTO personnel to PC & return (PJ, TJ, CG, IW)

Ian,

It seems that two hours transit outbound is a bit much for our needs -- the signal fades after ~ 1h15m. We have attached a schedule revision that should better suit our needs. Hopefully, this schedule will be better for your people as well.

Please comment..

NOTES:

- X completed or in progress
- * modified schedule

Local begin	Local end		tx-seq	SOUTHERN SURVEYER	
		X	RDS1 - a,b,c		1 am
		X	RDS2 - a,b,c	2 hours back (turn at 2km)	1 nm
9:00	10:00	*	RDS3 - a,b,c	1 hour~~s~~ out	
10:15	11:15	*	RDS1 - a,b,c	1 hours back (turn at 2km)	1 nm
11:30	12:30	*	RDS4 - a,b,c	1 hours out	
12:45	01:45	*	RDS5 - a,b,c	1 hours back (turn at 2km)	1 nm
02:00	02:30	*	RDS6 - a,b,c	0.5 hours out (or 5km from nearest acomm ship)	
		*		STOP DIW (DRIFT if possible)	3 nm 5 km
02:30	3:30	*	RDS7 - a,b,c	stationary -- 1 hour	? where
3:30	4:30	*	RDS8 - a,b,c	stationary -- 1 hour	from ~~each~~ [illegible]
4:30	5:30	*	RDS9 - a,b,c	stationary -- 1 hour	

? Karl Gray on MN tonight

separation between

Page 1 of 1

RDS2 Trials Proposed Operations for TUE 10 Nov 1998 -- Issue 2130 /02 local

Scheduled Activities (SUBJECT TO RAPID CHANGE)

Time Local

0700	5 min briefing for Chief Mate & Bosun
0730	Transfer 4 DSTO personnel back to PC to set up DOPSS
0830	Deploy DOPSS
0845-1200	Passive Detection Runs
1215	Transfer 4 DSTO personnel back to SS
1230-1400	AE & GHCG run
1400-?	Transfer 4 DSTO personnel back to SS
1830-2000	MF & Propagation run with SRP

Opportunity Based Activities

Consolidation of Projector and GPS logs for distribution to all participants.
Deploy CTD, XBT, Current Profiler from SS, as required

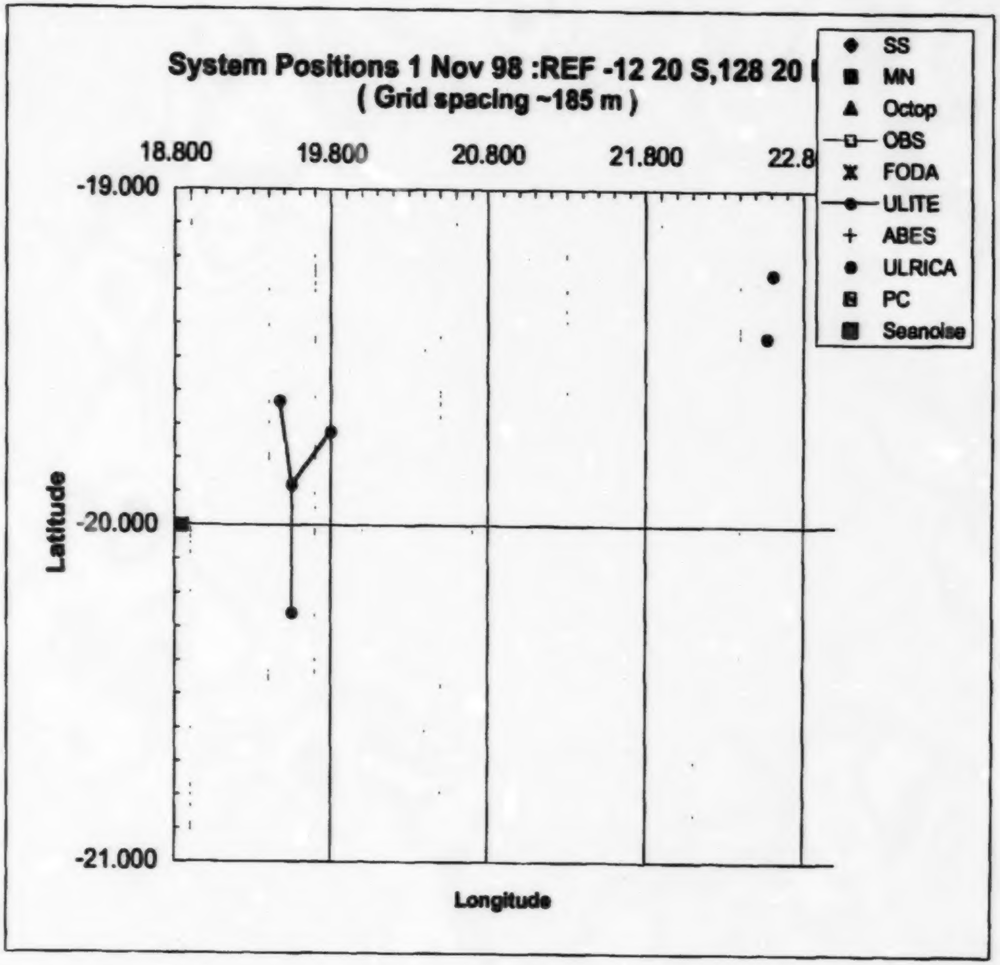
Personnel Transfers:

Mark Stevenson & Sue to MN for ULITE work ???
4 DSTO personnel to PC & return (PJ, TJ, CG, IW)
MS & TT for light bulb drops during PD runs with KIWI workboat

ANNEX B   DAILY DEPLOYMENT MAPS

This section contains maps with daily updates of the position of all the equipment in the water at any given time. The positions and maps were compiled by the trial director, Dr Ian Cox.

System	lat deg	lat min	long deg	long min
CL	-12	-20.000	128	20.000
SS	-12		128	20.200
MN	-12	-20.000	128	18.850
Octop	-12		128	
OBS	-12		128	
	-12		128	
FODA	-12		128	
	-12		128	
ULITE	-12	-20.260	128	19.550
	-12	-19.880	128	19.550
	-12	-19.720	128	19.800
	-12	-19.880	128	19.550
	-12	-19.630	128	19.470
ABES	-12		128	
ULRICA	-12	-19.437	128	22.572
	-12	-19.250	128	22.608
	-12		128	
PC	-12		128	
	-12		128	
Seanoise	-12	-25.898	128	20.762
	-12		128	
	-12		128	
	-12		128	
	-12		128	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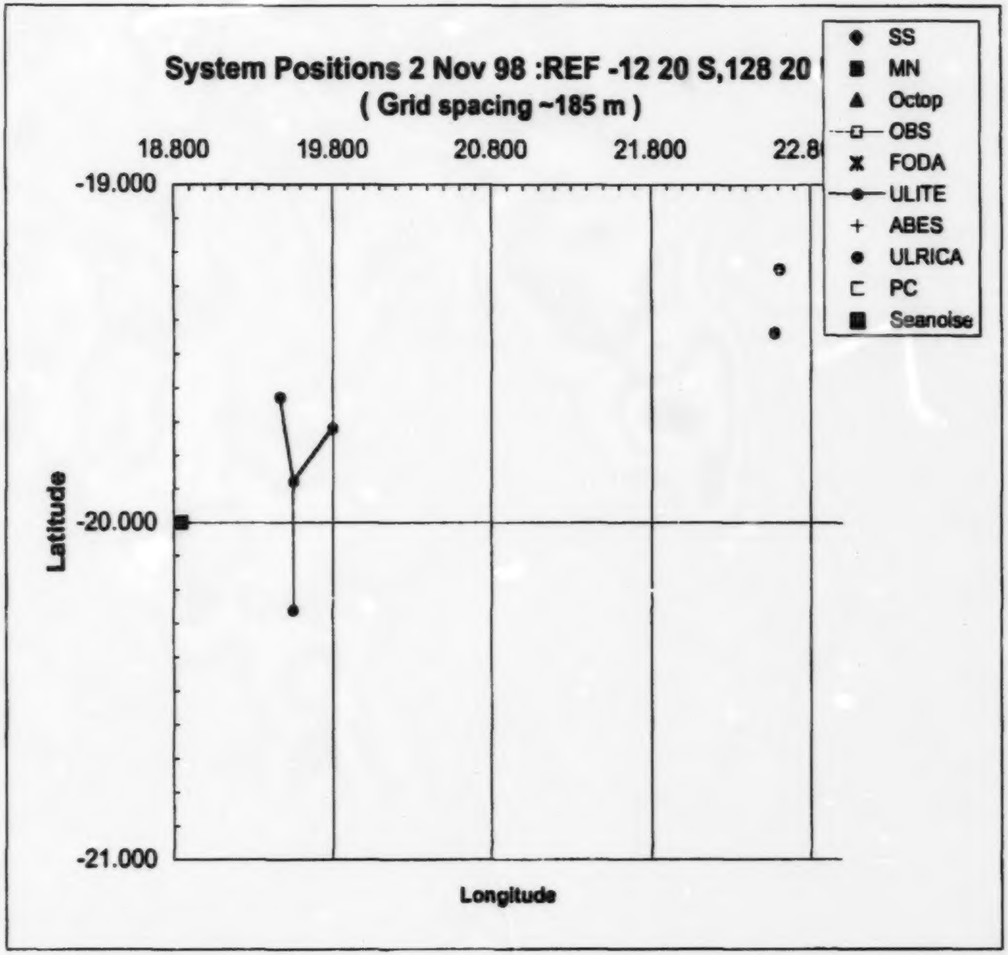
(Grid spacing ~185 m)

System	lat deg	lat min	long deg	long min
CL	-12	-20.000	128	20.000
SS	-12		128	20.200
MN	-12	-20.000	128	18.850
Octop	-12		128	
OBS	-12		128	
	-12		128	
FODA	-12		128	
	-12		128	
ULITE	-12	-20.260	128	19.550
	-12	-19.880	128	19.550
	-12	-19.720	128	19.800
	-12	-19.880	128	19.550
	-12	-19.630	128	19.470
ABES	-12		128	
ULRICA	-12	-19.437	128	22.572
	-12	-19.250	128	22.608
	-12	-21.265	128	20.899
PC	-12		128	
	-12		128	
Seanoise	-12	-25.898	128	20.762
	-12		128	
	-12		128	
	-12		128	
	-12		128	



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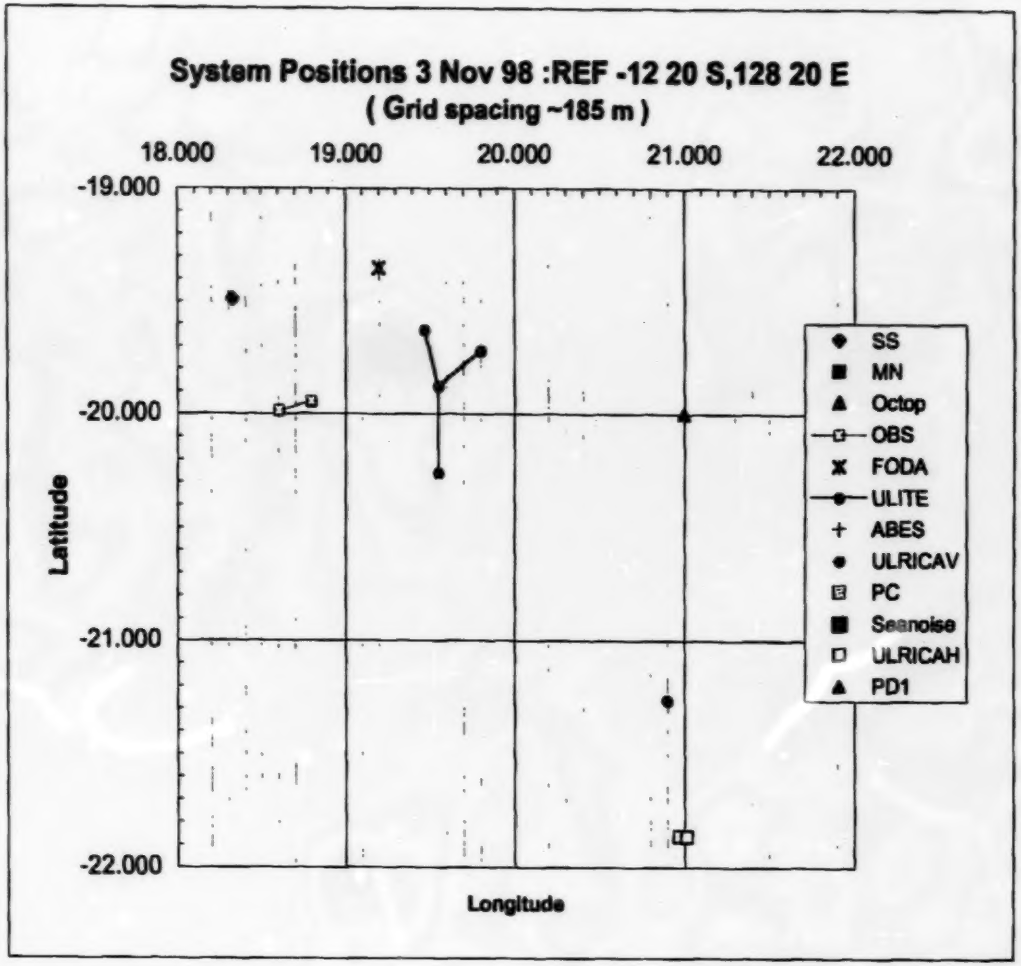
(Grid spacing ~185 m)

System	lat deg	lat min	long deg	long min
CL	-12	-20.000	128	20.000
SS	-12	-19.493	128	18.327
MN	-12		128	
Octop	-12		128	
OBS	-12	-19.946	128	18.796
	-12	-19.987	128	18.605
FODA	-12	-19.350	128	19.200
	-12		128	
ULITE	-12	-20.260	128	19.550
	-12	-19.880	128	19.550
	-12	-19.720	128	19.800
	-12	-19.880	128	19.550
	-12	-19.630	128	19.470
ABES	-12		128	
ULRICAV	-12	-21.265	128	20.899
ULRICAH	-12	-21.866	128	20.972
	-12	-21.868	128	21.020
PC	-12		128	
	-12		128	
Seanoise	-12	-25.898	128	20.762
	-12		128	
PD1	-12	-20.000	128	21.000
	-12		128	
	-12		128	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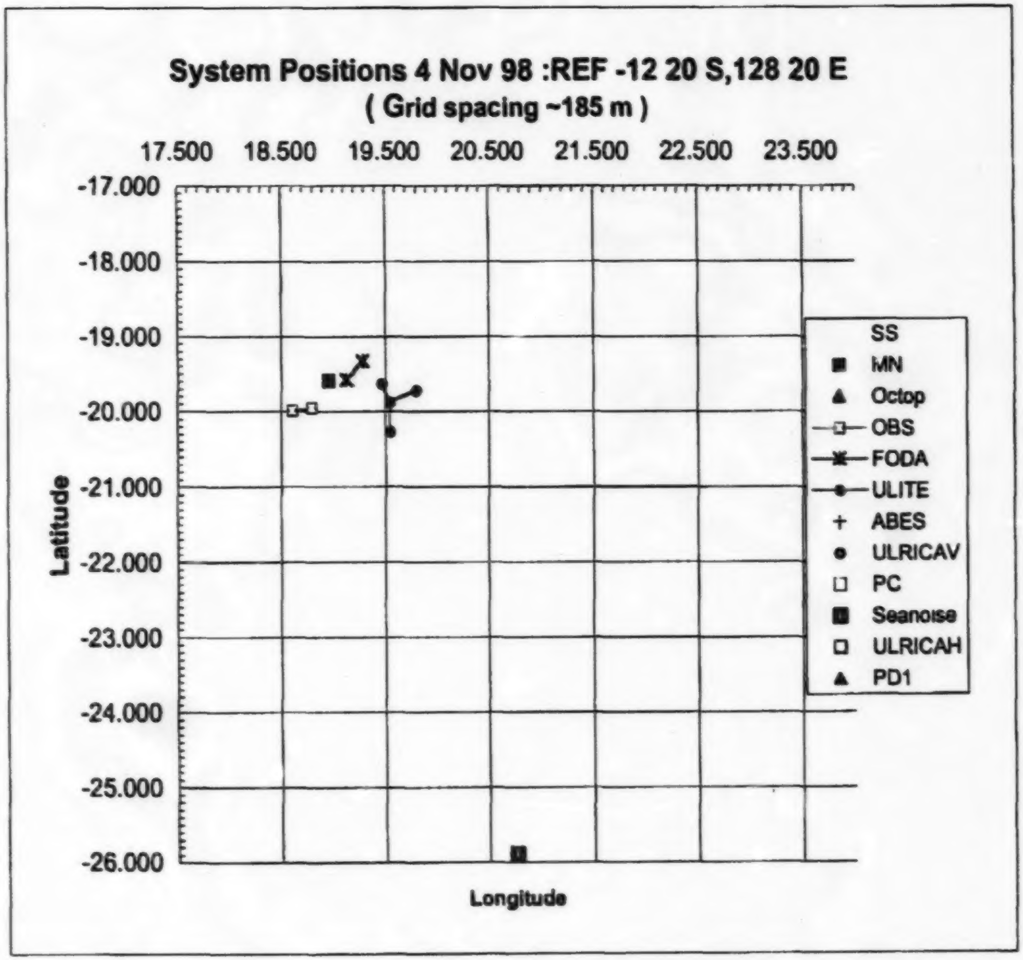
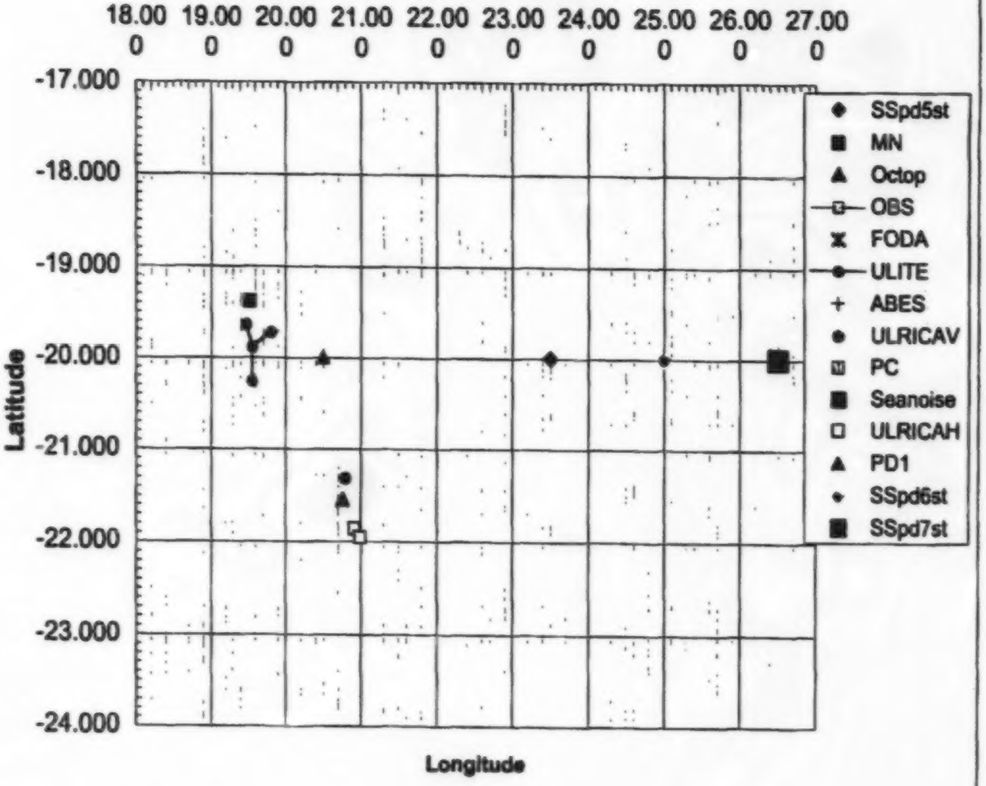
(Grid spacing ~185 m)

System	lat deg	lat min	long deg	long min
CL	-12	-20.000	128	20.000
SS	-12	-19.493	128	18.327
MN	-12	-19.585	128	18.958
Octop	-12		128	
OBS	-12	-19.946	128	18.796
	-12	-19.987	128	18.605
FODA	-12	-19.335	128	19.288
	-12	-19.581	128	19.125
ULITE	-12	-20.260	128	19.550
	-12	-19.880	128	19.550
	-12	-19.720	128	19.800
	-12	-19.880	128	19.550
	-12	-19.630	128	19.470
ABES	-12		128	
ULRICAV	-12		128	
ULRICAH	-12		128	
	-12		128	
PC	-12		128	
	-12		128	
Seanoise	-12	-25.898	128	20.762
	-12		128	
PD1	-12		128	
	-12		128	
	-12		128	



System	lat deg	lat min	long deg	
CL	-12	-20.000	128	20.000
SSpd5st	-12	-20.000	128	23.500
SSpd6st	-12	-20.000	128	25.000
SSpd7st	-12	-20.000	128	26.500
MN	-12	-19.377	128	19.519
Octop	-12	-21.557	128	20.757
OBS	-12	-19.946	128	
	-12	-19.987	128	18.605
FODA	-12		128	
	-12		128	
ULITE	-12	-20.260	128	19.550
	-12	-19.880	128	19.550
	-12	-19.720	128	19.800
	-12	-19.880	128	19.550
	-12	-19.630	128	19.470
ABES	-12		128	
ULRICAV		-21.317	128	20.788
ULRICAH	-12	-21.866	128	20.908
	-12	-21.958	128	20.986
PC	-12		128	
	-12		128	
Seanoise	-12	-25.695	128	20.322
	-12	-25.522	128	20.199
PD1	-12	-20.000	128	20.500
	-12		128	
	-12		128	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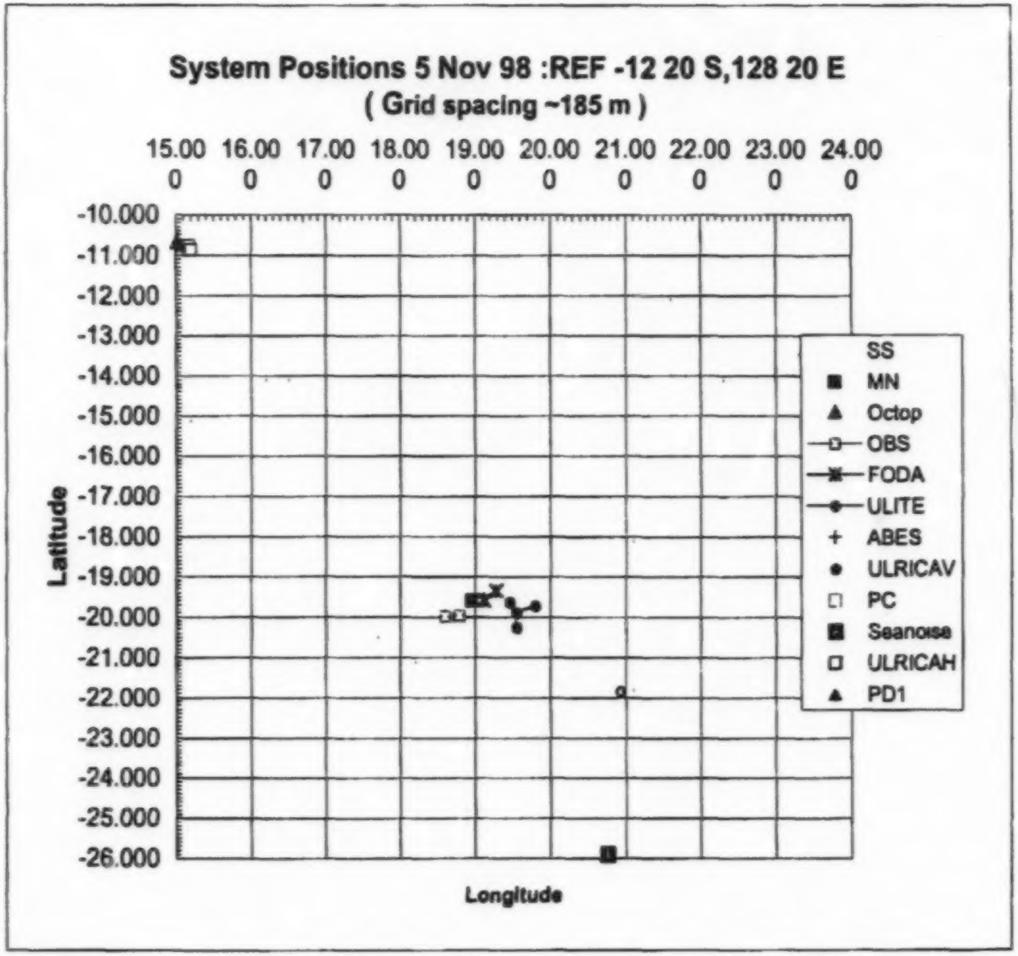
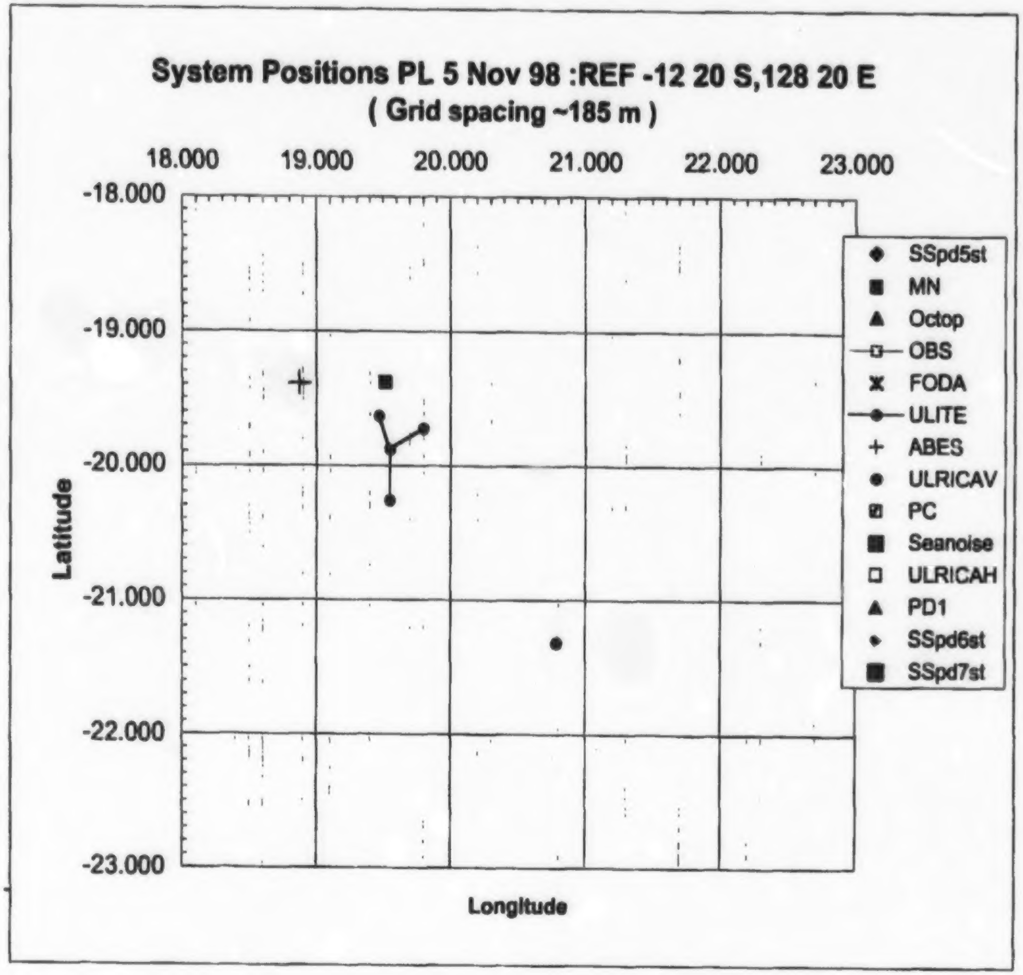
(Grid spacing ~185 m)

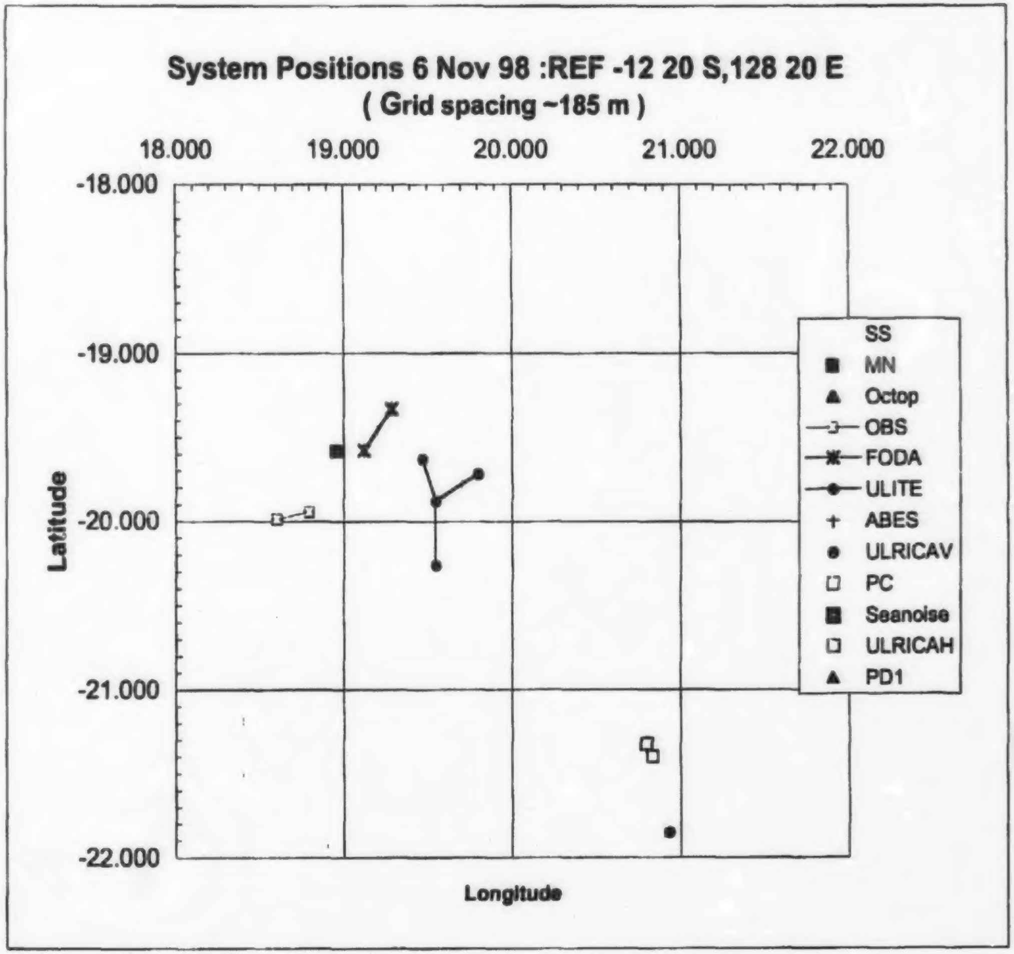
System	lat deg	lat min	long deg	long min
CL	-12	-20.000	128	20.000
SS	-12	-19.493	128	18.327
MN	-12	-19.585	128	18.958
Octop	-12	-10.708	128	15.016
OBS	-12	-19.946	128	18.796
	-12	-19.987	128	18.605
FODA	-12	-19.335	128	19.288
	-12	-19.581	128	19.125
ULITE	-12	-20.260	128	19.550
	-12	-19.880	128	19.550
	-12	-19.720	128	19.800
	-12	-19.880	128	19.550
	-12	-19.630	128	19.470
ABES	-12		128	
ULRICAV	-12	-21.849	128	20.934
ULRICAH	-12	-10.761	128	15.171
	-12	-10.862	128	15.204
PC	-12		128	
	-12		128	
Seanoise	-12	-25.898	128	20.762
	-12		128	
PD1	-12		128	
	-12		128	
	-12		128	



System	lat deg	lat min	long deg	
CL	-12	-20.000	128	20.000
SSpd5st	-12	-20.000	128	23.500
SSpd6st	-12	-20.000	128	25.000
SSpd7st	-12	-20.000	128	26.500
MN	-12	-19.377	128	19.519
Octop	-12		128	
OBS	-12	-19.946	128	
	-12	-19.987	128	18.605
FODA	-12		128	
	-12		128	
ULITE	-12	-20.260	128	19.550
	-12	-19.880	128	19.550
	-12	-19.720	128	19.800
	-12	-19.880	128	19.550
	-12	-19.630	128	19.470
ABES	-12	-19.391	128	18.877
ULRICAV		-21.317	128	20.788
ULRICAH	-12		128	
	-12		128	
PC	-12		128	
	-12		128	
Seanoise	-12	-25.695	128	20.322
	-12	-25.522	128	20.199
PD1	-12		128	
	-12		128	
	-12		128	

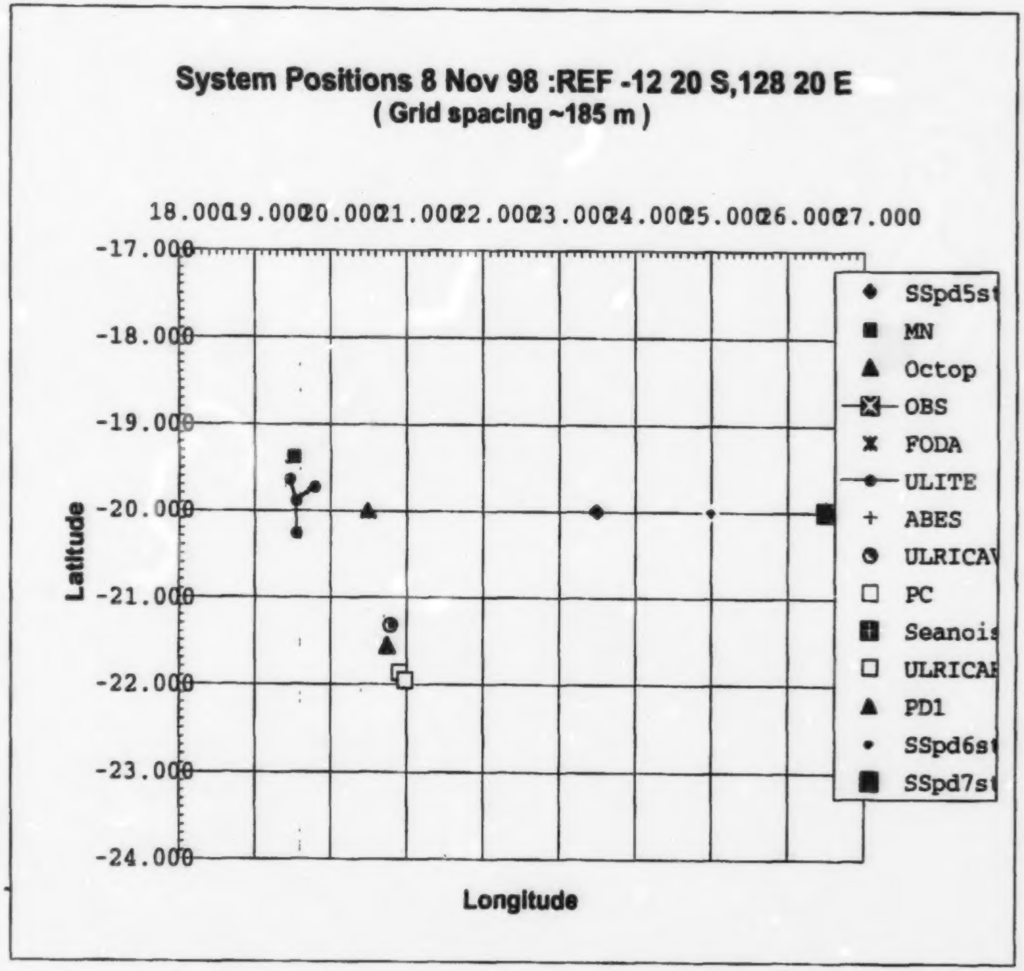

System Positions PL 5 Nov 98 :REF -12 20 S,128 20 E
(Grid spacing ~185 m)

System	lat deg	lat min	long deg	long min
CL	-12	-20.000	128	20.000
SS	-12	-19.493	128	18.327
MN	-12	-19.585	128	18.958
Octop	-12		128	
OBS	-12	-19.946	128	18.796
	-12	-19.987	128	18.605
FODA	-12	-19.335	128	19.288
	-12	-19.581	128	19.125
ULITE	-12	-20.260	128	19.550
	-12	-19.880	128	19.550
	-12	-19.720	128	19.800
	-12	-19.880	128	19.550
	-12	-19.630	128	19.470
ABES	-12		128	
ULRICAV	-12	-21.849	128	20.934
ULRICAH	-12	-21.325	128	20.799
	-12	-21.399	128	20.836
PC	-12		128	
	-12		128	
Seanoise	-12	-25.898	128	20.762
	-12		128	
PD1	-12		128	
	-12		128	
	-12		128	

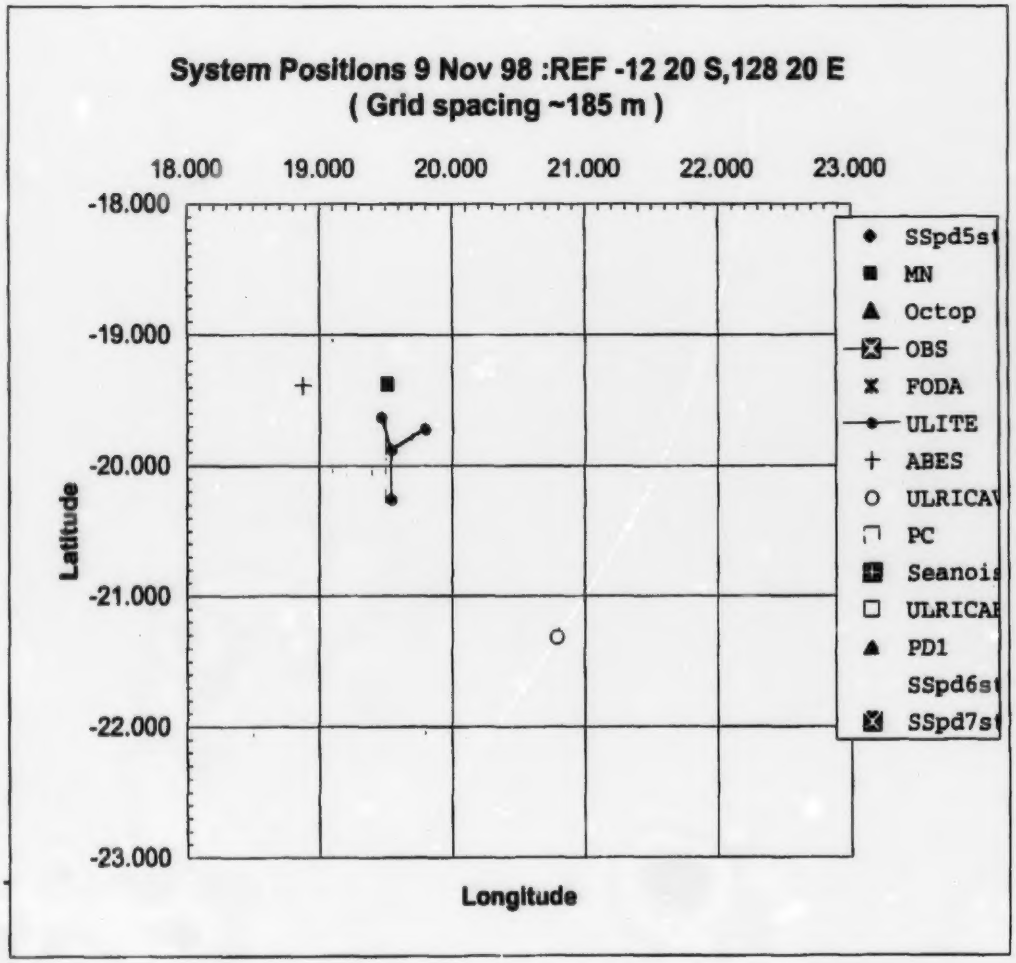


System Positions 6 Nov 98 :REF -12 20 S,128 20 E
(Grid spacing ~185 m)

System	lat deg	lat min	long deg	
CL	-12	-20.000	128	20.000
SSpd5st	-12	-20.000	128	23.500
SSpd6st	-12	-20.000	128	25.000
SSpd7st	-12	-20.000	128	26.500
MN	-12	-19.377	128	19.519
Octop	-12	-21.557	128	20.757
OBS	-12	-19.946	128	
	-12	-19.987	128	18.605
FODA	-12		128	
	-12		128	
ULITE	-12	-20.260	128	19.550
	-12	-19.880	128	19.550
	-12	-19.720	128	19.800
	-12	-19.880	128	19.550
	-12	-19.630	128	19.470
ABES	-12		128	
ULRICAV		-21.317	128	20.788
ULRICAH	-12	-21.866	128	20.908
	-12	-21.958	128	20.986
PC	-12		128	
	-12		128	
Seanoise	-12	-25.695	128	20.322
	-12	-25.522	128	20.199
PD1	-12	-20.000	128	20.500
	-12		128	
	-12		128	



System	lat deg	lat min	long deg	
CL	-12	-20.000	128	20.000
SSpd5st	-12	-20.000	128	23.500
SSpd6st	-12	-20.000	128	25.000
SSpd7st	-12	-20.000	128	26.500
MN	-12	-19.377	128	19.519
Octop	-12		128	
OBS	-12	-19.946	128	
	-12	-19.987	128	18.605
FODA	-12		128	
	-12		128	
ULITE	-12	-20.260	128	19.550
	-12	-19.880	128	19.550
	-12	-19.720	128	19.800
	-12	-19.880	128	19.550
	-12	-19.630	128	19.470
ABES	-12	-19.391	128	18.877
ULRICAV		-21.317	128	20.788
ULRICAH	-12		128	
	-12		128	
PC	-12		128	
	-12		128	
Seanoise	-12	-25.695	128	20.322
	-12	-25.522	128	20.199
PD1	-12		128	
	-12		128	
	-12		128	



System Positions 9 Nov 98 :REF -12 20 S,128 20 E
(Grid spacing ~185 m)

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This report contains a collection of non-acoustic data gathered during the TTCP sea trial RDS-2. The data were collected on the three ships that participated in the trial. FRV Southern Surveyor, HMNZS Manawanui and TSMV Pacific Conquest. The trial took place in the shallow waters of northern Australia, about 100 miles west of the city of Darwin, during the period 29 October - 12 November 1998. Trial RDS-2 was a TTCP Subgroup G initiated multinational collaborative sea trial of concepts related to rapidly deployable underwater systems. The endorsed aim of the trial was to test and demonstrate advance deployable array technologies and advanced data recovery methods and to test rapid array deployment techniques. RDS-2 was the second of three collaborative sea tests proposed by the RDS working group. This document provides sufficient information to allow researchers to use the collected data independently.

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Non-acoustic data, TTCP, RDS-2 trial, Timor Sea